

Department of Scientific and Industrial
Research

FOREST PRODUCTS RESEARCH
BULLETIN NO. 26

An Atlas of
End-Grain
Photomicrographs
for the Identification
of Hardwoods

HER MAJESTY'S STATIONERY OFFICE

The remarkable increase in the number of hardwoods which have appeared on the market in recent years has stimulated a demand for means of identification.

The recently published Forest Products Research Bulletin No. 25, Identification of Hardwoods : A Lens Key (H.M.S.O., 5s. 0d.) provides a practical method of timber identification for those lacking laboratory facilities, such as workers in the forest, timber yard, factory or office. The present publication supplements the Lens Key by providing photomicrographs of the timbers dealt with in Bulletin No. 25 and enables users to verify their identifications by comparison with photographs of authentic specimens.

The Atlas can be used for identification in conjunction with the Lens Key, or any other key, or alternatively, it can be used by itself to identify a timber by direct comparison with photomicrographs. It also provides a ready means of checking that a timber is what it is reputed to be.

The arrangement of the photomicrographs is the same as that used for the anatomical descriptions in the Lens Key and is intended to facilitate cross-reference between the two publications.

Thy.

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH

FOREST PRODUCTS RESEARCH

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**AN ATLAS OF
END-GRAIN PHOTOMICROGRAPHS
FOR THE IDENTIFICATION
OF HARDWOODS**

LONDON: HER MAJESTY'S STATIONERY OFFICE

1953

THE Director of Forest Products Research is prepared to consider applications from timber merchants, or others connected with the timber-using professions and industries, for investigations, at an agreed fee, pertaining to the identity, seasoning, mechanical and physical properties, durability and preservative treatment and working qualities of timbers.

So far as the programme of research permits, the service of the officers is available for advisory work, for which no charge is made unless considerable time is occupied in preparing the reply, or travelling or the carrying out of experimental work is involved. Applications for tests or advice should be addressed to the Director, Forest Products Research Laboratory, Princes Risborough, Aylesbury, Bucks.

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1953

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PREFATORY NOTE

This Bulletin has been prepared as a further contribution towards meeting the demand for means of identifying commercial timbers.

It was realized that the previous publication on the subject, Forest Products Research Bulletin No. 25, *Identification of Hardwoods : A Lens Key*, although giving the essential data needed for identification, might not prove entirely satisfactory for those users who were not in a position to verify the results obtained from the key by comparing the samples in question with authentic specimens or photomicrographs. It is hoped that the present publication will go a long way towards overcoming this difficulty.

Although the decision to prepare an atlas of this kind was taken before the preparation of Bulletin No. 25 was completed it was deemed advisable to issue this supplementary publication separately, partly to avoid delay, and partly to limit the cost of the key for those to whom the atlas itself is not essential.

F. Y. HENDERSON,
Director

FOREST PRODUCTS RESEARCH LABORATORY,
Princes Risborough,
Aylesbury,
Bucks.
December, 1952

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AN ATLAS OF END-GRAIN PHOTOMICROGRAPHS FOR THE IDENTIFICATION OF HARDWOODS

ABSTRACT

THIS Bulletin comprises 396 photomicrographs at $\times 10$ magnification showing the structure of the timbers dealt with in *Bulletin No. 25*, '*Identification of Hardwoods: A Lens Key*,' and is primarily intended for use in conjunction with that key. The introductory notes include lists of timbers chosen to illustrate the various features used in identification. An index giving botanical and common names of the timbers is appended.

INTRODUCTION

The collection of photomicrographs included in the present publication covers practically all the kinds of hardwood on the United Kingdom market and will generally enable anyone acquainted with the diagnostic anatomical features of timber to carry out identification by direct comparison between the structure of the sample to be identified and the photographs. The atlas is primarily intended for use in conjunction with *Forest Products Research Bulletin No. 25*, '*Identification of Hardwoods: A Lens Key*,' which provides a systematic scheme for identification based on the use of marginally perforated cards. It is advisable to verify identifications made by means of this, or any other key, by comparing the sample in question with an authentic specimen or, failing this, with a photomicrograph or detailed anatomical description. For anyone who has no access to an adequate collection of named timber specimens the atlas provides a reasonable substitute. Apart from its use in ordinary identification the atlas will also be found useful for checking whether or not a timber is what it is reputed to be.

In whichever of these ways the atlas is employed it will be necessary to prepare a *cleanly* cut end-grain surface of the sample in question for examination. A razor or safety razor blade is better than an ordinary knife for this purpose. In selecting a portion of the sample to prepare in this way it should be noted that wood within an inch or two of the pith often differs appreciably in structure from more 'adult' wood, particularly in regard to the size and number of pores and rays, and should therefore be avoided, if possible.

The end-grain structure shown in the photomicrographs can be regarded as fairly representative of the adult wood of the species concerned in so far as this can be reproduced photographically. A certain amount of variation in structure may occur within the adult wood of each species but it was impracticable to include sufficient photomicrographs to illustrate the extent of this variation; if necessary, some idea of this may be gained by studying the anatomical descriptions given in *Bulletin No. 25*.

All the photomicrographs included are at a linear magnification of ten times. This is substantially higher than that of a hand lens rated at $\times 10$

such as is commonly used for identification since this figure refers to area magnification and corresponds to little more than three times linear. The object of using the higher magnification is to ensure reproduction of a similar degree of detail to that detectable with a lens by the eye trained in this kind of observation.

In the course of preparing the atlas certain improvements have been developed in the technique of producing photomicrographs of this kind. The general procedure was to soften the selected wood blocks by boiling in water for up to three hours, then to trim the end-grain surface on a heavy sledge-type microtome, and then to leave the blocks to stand until the prepared surface just appeared uniformly dry. Beyond this stage difficulty was experienced with several species owing to the development of surface checks which became pronounced under the heat of the illuminating lamp of the photomicrographic apparatus. This difficulty was finally overcome by applying transparent adhesive tape to the end-grain surface immediately it became dry. The tape had no adverse effect on definition and in some cases improved it. In putting on the tape it was found important to apply this with its length in the radial direction of the block rather than in the tangential, as in the latter case the fine striations usually present in the tape became apparent in the photographs. The photomicrographic apparatus was of the optical bench type incorporating a fixed front camera with bellows extension. A two-inch f6.5 holostigmat lens was used throughout in conjunction with orthochromatic plates (or soft gradation panchromatic plates for red or reddish-brown woods). Illumination of the surface of the block was by means of a single 500 watt photoflood lamp. The preparation of the blocks was carried out principally by Mr. G. L. Franklin of the Wood Structure Section and the photomicrographs by Mr. W. Baldwin, the Laboratory's senior photographer.

The arrangement of the photomicrographs according to alphabetical order of botanical families, and within each family similarly according to the botanical names of the timber, is exactly parallel with that adopted for the descriptions of the timbers in *Bulletin No. 25* and in practice this should facilitate reference from one publication to the other.

To assist students and others to obtain a working knowledge of the anatomical features employed in identification, the following list has been prepared comprising examples of timbers showing the various features which can be observed on the end-grain with the naked eye aided where necessary by a hand lens. This supplements the necessarily limited number of illustrations given in *Bulletin No. 25*: reference should be made to this Bulletin for full definitions of the features and explanatory notes.

EXAMPLES OF FEATURES USED IN THE LENS KEY

For definitions and notes on these features see *Forest Products Research Bulletin No. 25*, pages 4-13.

Feature.	Atlas number and name of timber.
Pores.	
1. Exclusively solitary.	61. <i>Goupia glabra</i> . 87. <i>Dryobalanops oblongifolia</i> . 116. <i>Quercus ilex</i> . 335. <i>Sarcocephalus diderrichii</i> .

*Feature.**Atlas number and name of timber.***Pores**—*continued.*

- | | |
|---|---|
| 2. Pore pattern dominated by radial multiples of three or more. | 28. <i>Ostrya carpinifolia.</i>
245. <i>Tetramerista glabra.</i>
306. <i>Olea hochstetteri.</i>
350. <i>Autranella congolensis.</i> |
| 3. Radial or oblique arrangement. | 116. <i>Quercus ilex.</i>
120. <i>Calophyllum brasiliense.</i>
122. <i>Mesua ferrea.</i>
293. <i>Eucalyptus marginata.</i> |
| 4. Tangential arrangement. | 275. <i>Maclura pomifera.</i>
312. <i>Grevillea robusta.</i>
22. <i>Hedera helix.</i>
376. <i>Celtis occidentalis.</i> |
| 5. Pore clusters present. | 310. <i>Cardwellia sublimis.</i>
358. <i>Ailanthus altissima.</i>
376. <i>Celtis occidentalis.</i>
380a. <i>Ulmus glabra.</i> |
| 8. Tyloses abundant. | 43. <i>Cordia abyssinica.</i>
88. <i>Hopea odorata.</i>
275. <i>Maclura pomifera.</i>
288. <i>Eucalyptus maculata.</i> |
| 9. Deposits of gum or other substances present in pores. | 35. <i>Tabebuia serratifolia.</i>
82. <i>Dillenia</i> sp.
87. <i>Dryobalanops oblongifolia.</i>
378. <i>Holoptelea integrifolia.</i> |
| 10. Fewer than 12 per 10 sq. mm. | 2. <i>Anacardium excelsum.</i>
11. <i>Mezzettia leptopoda.</i>
31. <i>Jacaranda copaia.</i>
37. <i>Bombax insigne.</i> |
| 11. 12–30 per 10 sq. mm. | 5. <i>Dracontomelum</i> sp.
17. <i>Dyera costulata.</i>
347. <i>Blighia sapida.</i>
360. <i>Simaruba amara.</i> |
| 12. 30–65 per 10 sq. mm. | 30. <i>Cybistax donnell-smithii.</i>
45. <i>Cordia fragrantissima.</i>
48. <i>Aucoumea klaineana.</i>
264. <i>Swietenia macrophylla.</i> |
| 13. 65–125 per 10 sq. mm. | 7. <i>Schinopsis balansae.</i>
15. <i>Aspidosperma desmanthum.</i>
52. <i>Santiria</i> sp.
86. <i>Dryobalanops aromatica.</i> |

*Feature.**Atlas number and name of timber.***Pores**—*continued.*

- | | |
|----------------------------------|--|
| 14. 125–250 per 10 sq. mm. | 53. Tetragastris hostmanni.
105. Excoecaria africana.
284. Rapanea rhododendroides.
300. Tristania conferta. |
| 15. More than 250 per 10 sq. mm. | 12. Oxandra lanceolata.
19. Picralima eliottii.
54. Buxus sempervirens.
74. Cornus florida. |
| 16. Size 2 or less. | 12. Oxandra lanceolata.
24. Alnus glutinosa.
27. Corylus avellana.
54. Buxus sempervirens. |
| 17. Size 3. | 63. Lophopetalum sp.
133. Aniba canelilla.
302. Strombosia pustulata.
372. Mansonia altissima. |
| 18. Size 4. | 84. Balanocarpus heimii.
106. Hieronyma alchorneoides.
136. Endiandra palmerstonii.
145. Ocotea usambarensis. |
| 19. Size 5. | 110. Castanea sativa.
301. Lophira alata var. procera.
322. Parinari excelsa.
387. Vochysia hondurensis. |
| 20. Size 6. | 37. Bombax insigne.
110. Castanea sativa.
115b. Quercus robur.
167. Andira inermis. |

Soft Tissue.

- | | |
|--------------------------------------|--|
| 23. Absent, or indistinct with lens. | 49. Canarium euphyllum.
51. Canarium sp.
138. Nectandra sp. or Ocotea sp.
307. Olea (Steganthus) welwitschii. |
| 25. Terminal prominent. | 1. Acer pseudoplatanus.
181. Copaifera coleosperma.
193. Daniellia ogea.
242. Liriodendron tulipifera. |
| 26. Apparently terminal only. | 1. Acer pseudoplatanus.
114. Nothofagus procera.
264. Swietenia macrophylla.
341. Fagaropsis angolensis. |

*Feature.**Atlas number and name of timber.***Soft Tissue**—*continued.*

- | | |
|---|---|
| 27. Predominantly independent of the pores. | 10. Cleistopholis patens.
17. Dyera costulata.
99. Diospyros virginiana.
120. Calophyllum brasiliense. |
| 28. Diffuse. | 83. Anisoptera sp.
91. Parashorea stellata.
106. Hieronyma alchorneoides.
186. Dalbergia cearensis. |
| 29. Predominantly associated with the pores. | 143. Ocotea rodiaei.
161. Afrormosia elata.
206. Koombassia malaccensis.
271. Chlorophora excelsa. |
| 30. Surrounding the pores (see also examples under feature 31). | 86. Dryobalanops aromatica.
143. Ocotea rodiaei.
153. Acacia catechu.
193. Daniellia ogea. |
| 31. Wing-like and/or confluent. | 155. Acacia giraffae.
163. Albizzia zygia.
178. Cassia fistula.
206. Koombassia malaccensis. |
| 32. Banded. | 68. Terminalia bialata.
125. Symphonia globulifera.
251. Dysoxylum fraserianum.
322. Parinari excelsa. |
| 33. Bands broad and conspicuous. | 167. Andira inermis.
169. Baphia nitida.
217. Parkia filicoidea.
363. Sterculia oblonga. |
| 34. Fine lines. | 119. Gonystylus sp.
150. Cariniana sp.
226. Pterocarpus angolensis.
360. Simaruba amara. |
| 35. Reticulate. | 40. Ceiba pentandra.
58. Casuarina torulosa.
130. Carya sp.
353. Mimusops heckelii. |
| 36. Scalariform. | 10. Cleistopholis patens.
11. Mezzettia leptopoda.
316. Anisophyllea laurina.
369. Pentace burmanica. |

*Feature.**Atlas number and name of timber.***Other Features.**

- | | |
|--|---------------------------------------|
| 38. Included phloem. | 239. Strychnos sp. |
| | 382. Avicennia sp. |
| 39. Vertical intercellular canals present. | 85. Dipterocarpus sp. |
| | 87. Dryobalanops oblongifolia. |
| | 198. Eperua falcata. |
| | 201. Gossweilerodendron balsamiferum. |
| 41. Fibres individually distinct, and in radial arrangement. | 13. Alstonia congenis. |
| | 193. Daniellia ogea. |
| | 278. Musanga smithii. |

Rays.

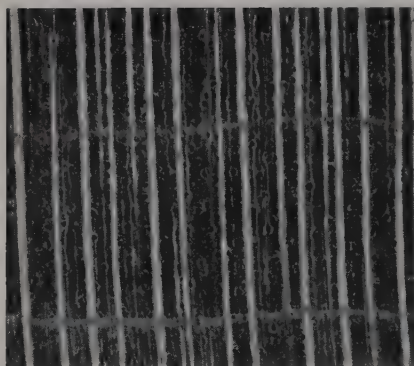
- | | |
|--|--------------------------------|
| 45. More than half the width of the pores. | 118. Scottellia coriacea. |
| | 244. Hibiscus tiliaceus. |
| | 358. Ailanthus altissima. |
| | 363. Sterculia oblonga. |
| 46. Wider than pores. | 11. Mezzettia leptopoda. |
| | 58. Casuarina torulosa. |
| | 310. Cardwellia sublimis. |
| | 318. Poga oleosa. |
| 48. Size 3 or less. | 5. Dracontomelum sp. |
| | 15. Aspidosperma desmanthum. |
| | 24. Alnus glutinosa. |
| | 49. Canarium euphyllum. |
| 49. Size 4. | 20. Ilex aquifolium. |
| | 260. Khaya senegalensis. |
| | 361. Argyrodermum trifoliatum. |
| | 373. Triplochiton scleroxylon. |
| 50. Size 5. | 81. Octomeles sumatrana. |
| | 308. Platanus acerifolia. |
| | 358. Ailanthus altissima. |
| | 363. Sterculia oblonga. |
| 51. Size 6. | 11. Mezzettia leptopoda. |
| | 24. Alnus glutinosa. |
| | 115c. Quercus cerris. |
| | 318. Poga oleosa. |
| 52. Size 7. | 58. Casuarina torulosa. |
| | 116. Quercus ilex. |
| | 310. Cardwellia sublimis. |
| | 312. Grevillea robusta. |
| 61. Fewer than 25 per 5mm. | 10. Cleistopholis patens. |
| | 43. Cordia abyssinica. |
| | 81. Octomeles sumatrana. |
| | 90. Parashorea malaanonan. |

*Feature.**Atlas number and name of timber.***Rays**—*continued.*

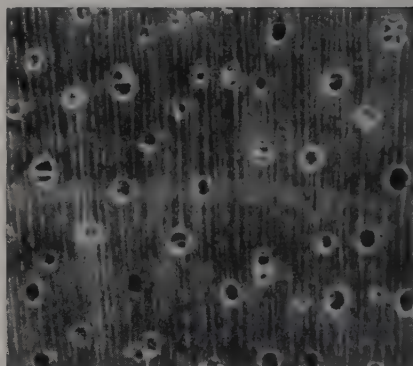
- | | |
|----------------------------------|---|
| 62. 25–50 per 5 mm. | 4. <i>Camptosperma auriculata.</i>
6. <i>Mangifera indica.</i>
12. <i>Oxandra lanceolata.</i>
51. <i>Canarium sp.</i> |
| 63. 50–80 per 5 mm. | 64. <i>Anogeissus acuminata</i>
98a. <i>Diospyros ebenum.</i>
113. <i>Nothofagus cunninghamii.</i>
119. <i>Gonystylus sp.</i> |
| 64. More than 80 per 5 mm. | 60. <i>Euonymus europaeus.</i>
127. <i>Aesculus hippocastanum.</i>
227. <i>Pterocarpus dalbergioides.</i>
304. <i>Ligustrum vulgare.</i> |
| 65. Commonly 3 or more per pore. | 67. <i>Terminalia arjuna.</i>
72. <i>Terminalia superba.</i>
170. <i>Berlinia auriculata.</i>
322. <i>Parinari excelsa.</i> |
| 66. Aggregate rays present. | 24. <i>Alnus glutinosa.</i>
26. <i>Carpinus betulus.</i>
27. <i>Corylus avellana.</i>
58. <i>Casuarina torulosa.</i> |

Growth Rings.

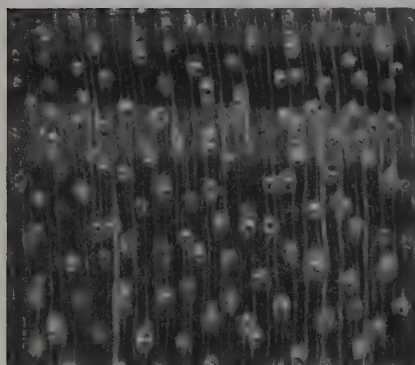
- | | |
|--|--|
| 86. Sufficiently distinct to be counted. | 1. <i>Acer pseudoplatanus.</i>
21. <i>Acanthopanax ricinifolius.</i>
57. <i>Viburnum opulus.</i>
341. <i>Fagaropsis angolensis.</i> |
| 87. Ring-porous. | 21. <i>Acanthopanax ricinifolius.</i>
276. <i>Morus alba.</i>
303. <i>Fraxinus excelsior.</i>
380a. <i>Ulmus glabra.</i> |



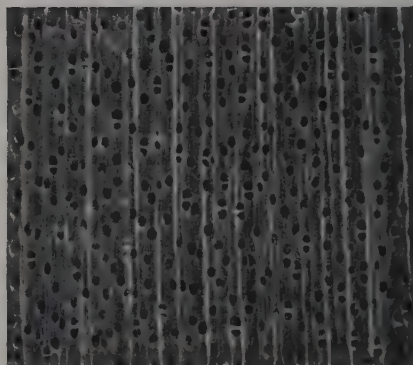
1. *Acer pseudoplatanus*
Sycamore



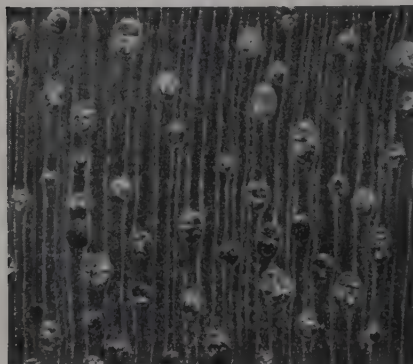
2. *Anacardium excelsum*
Espavel



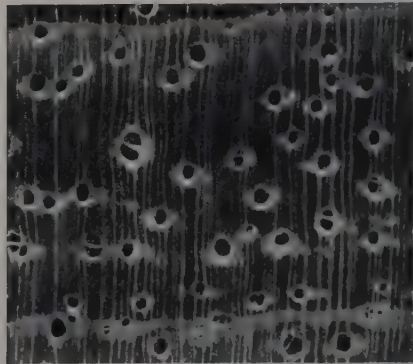
3. *Astronium gracile*
Guaribu



4. *Campnosperma auriculata*
Terentang

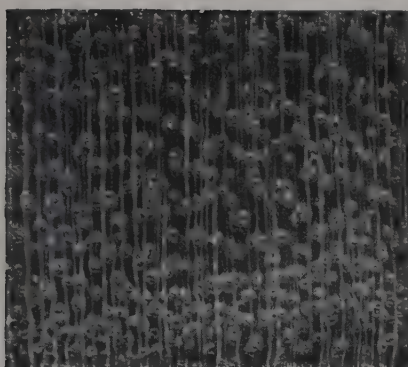


5. *Dracontomelum* sp.
New Guinea walnut



6. *Mangifera indica*
Amba, Mango

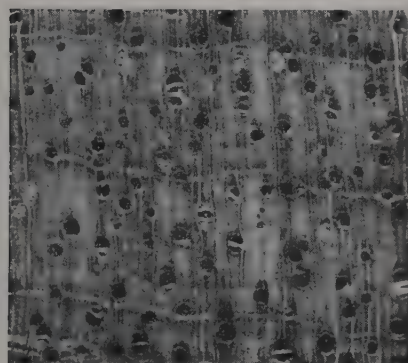
ANACARDIACEAE (7-9)—ANNONACEAE (10-12)



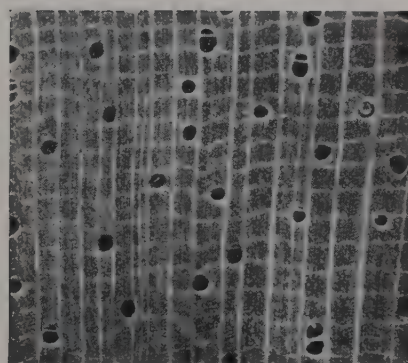
7. *Schinopsis balansae*
Quebracho



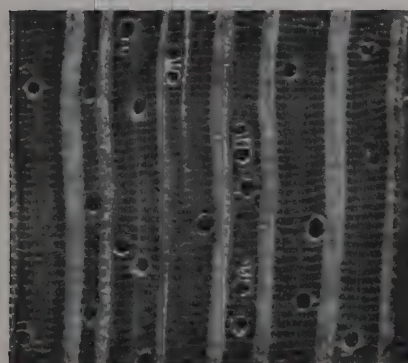
8. *Swintonia floribunda*
Merpau



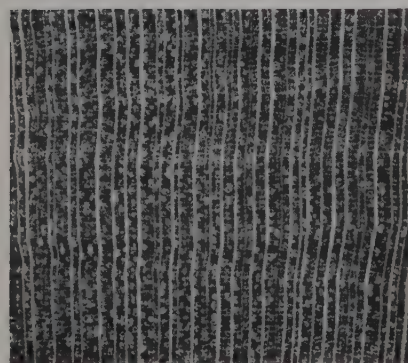
9. *Swintonia spicifera*
Merpau



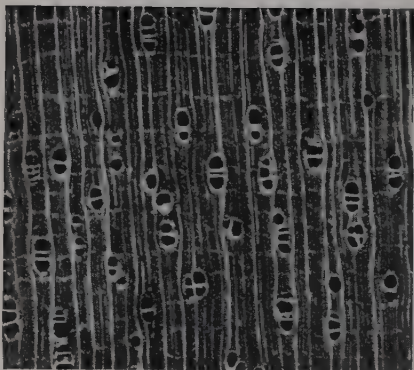
10. *Cleistopholis patens*
Otu



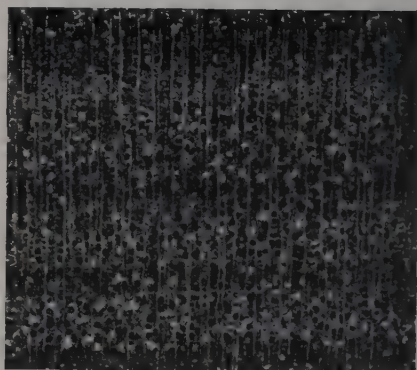
11. *Mezettia leptopoda*
Pisang pisang



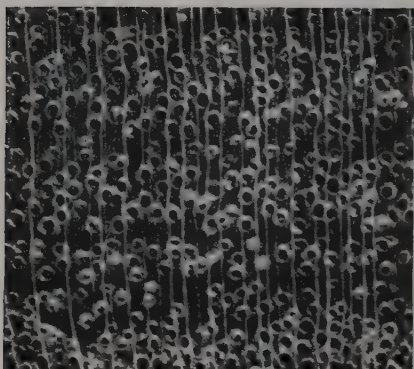
12. *Oxandra lanceolata*
Lancewood



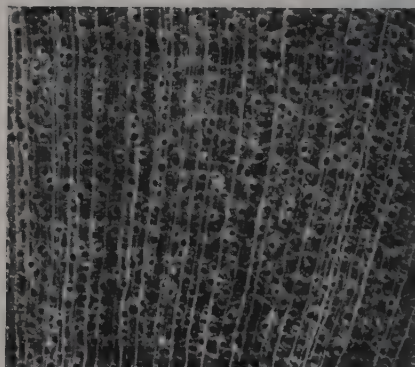
13. *Alstonia congensis*
Alstonia



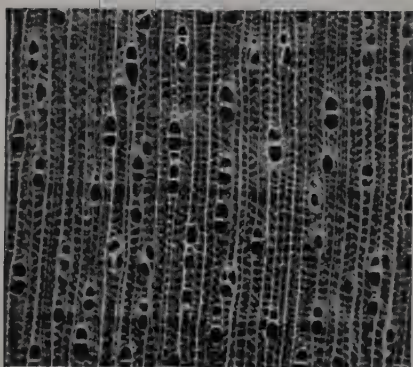
14. *Aspidosperma polyneuron*
Red peroba



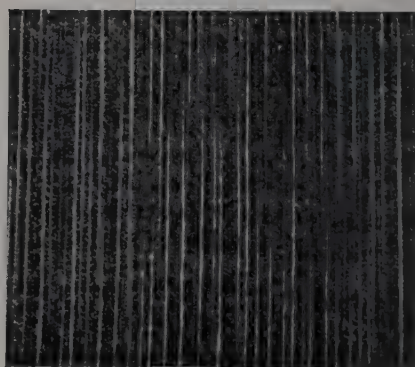
15. *Aspidosperma desmanthum*
Araracanga



16. *Aspidosperma excelsum*
Yaruru



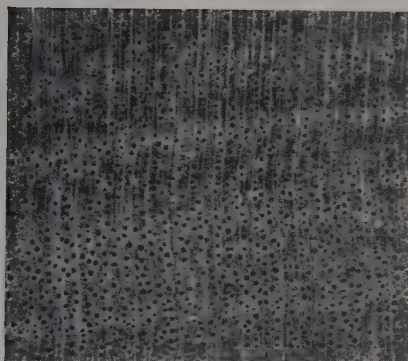
17. *Dyera costulata*
Jelutong



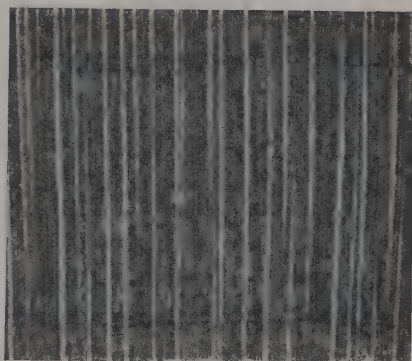
18. *Gonioma kamassi*
Kamassi

APOCYNACEAE (19)—AQUIFOLIACEAE (20)

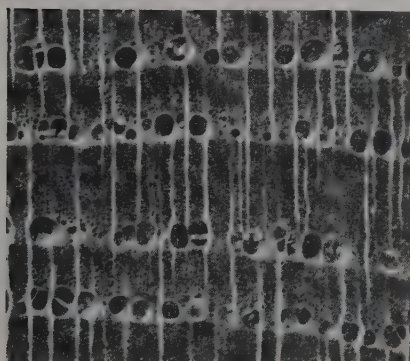
ARALIACEAE (21–23)—BETULACEAE (24)



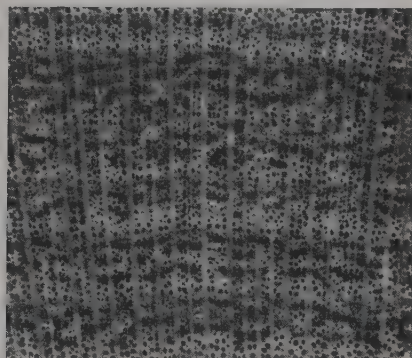
19. *Picalima elliottii*
Kanwini



20. *Ilex aquifolium*
European holly



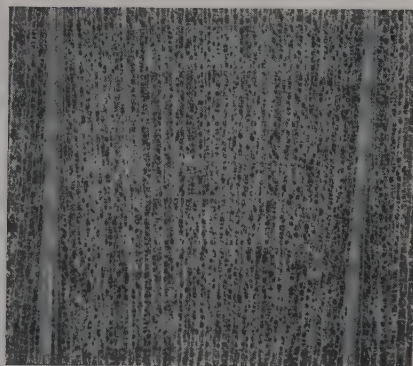
21. *Acanthopanax ricinifolius*
Sen



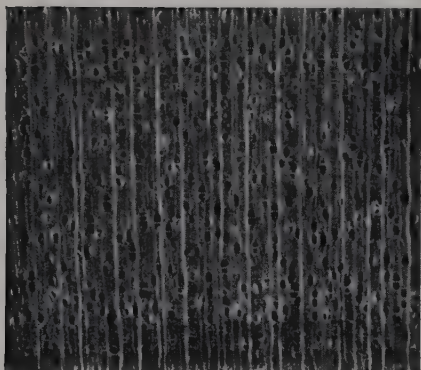
22. *Hedera helix*
Ivy



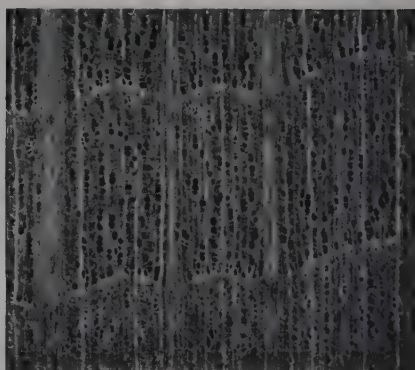
23. *Polyscias kikuyensis*
Mutati



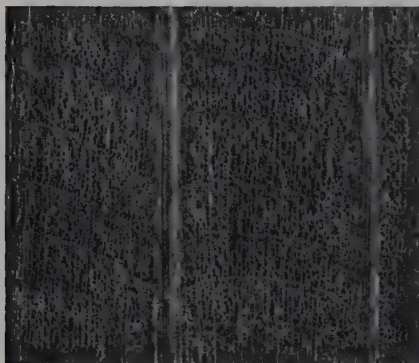
24. *Alnus glutinosa*
European alder



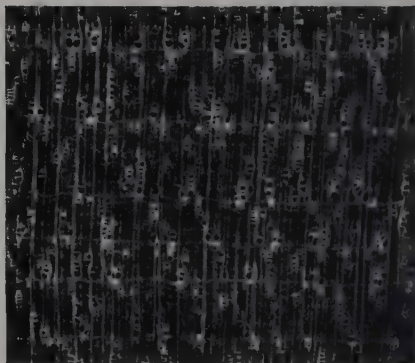
25. *Betula pubescens*
European birch



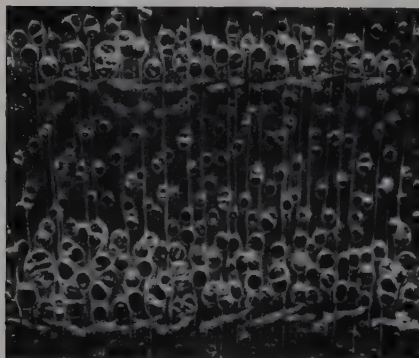
26. *Carpinus betulus*
Hornbeam



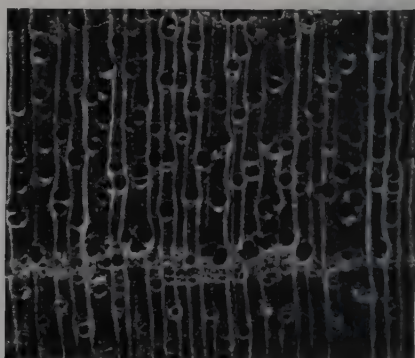
27. *Corylus avellana*
Hazel



28. *Ostrya carpinifolia*
European hop-hornbeam

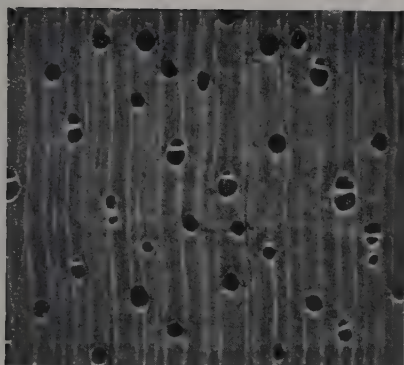


29. *Catalpa speciosa*
Catalpa

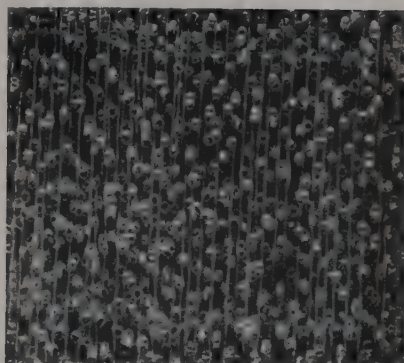


30. *Cybistax donnell-smithii*
Prima vera

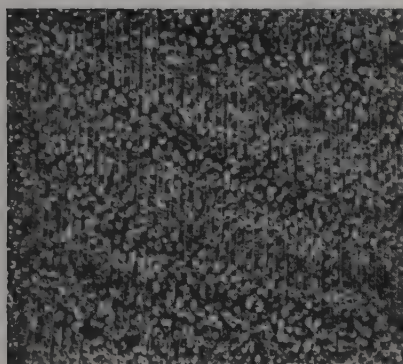
BIGNONIACEAE (31-35)—BOMBACACEAE (36)



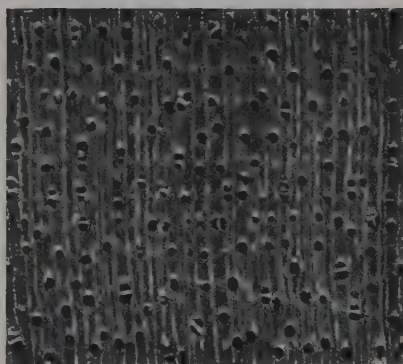
31. *Jacaranda copaia*
Futui



32. *Paratecoma peroba*
White peroba



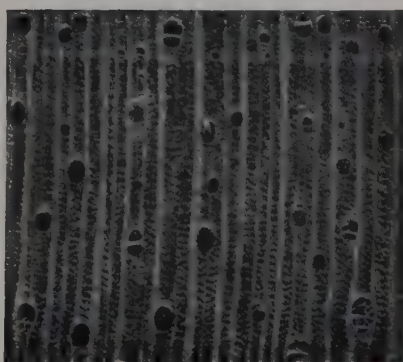
33. *Tabebuia guayacan*
Guayacan



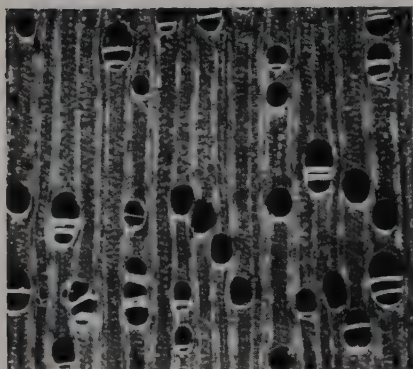
34. *Tabebuia pentaphylla*
Mayflower



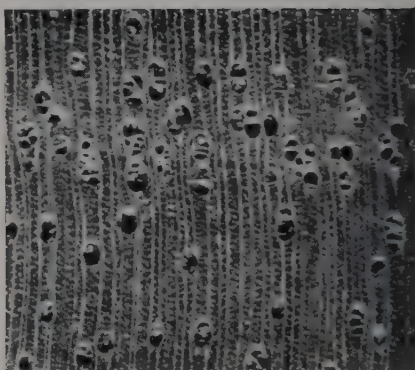
35. *Tabebuia serratifolia*
Ipê



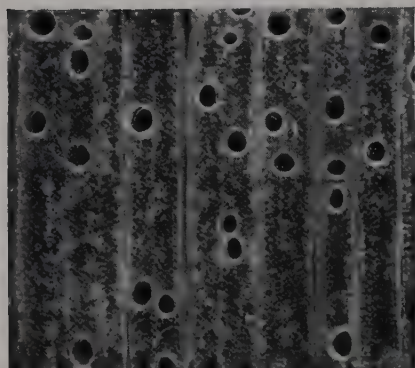
36. *Bombax buonopozense*
Bombax



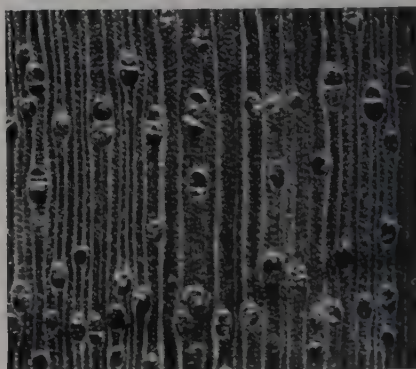
37. *Bombax insignis*
Didu



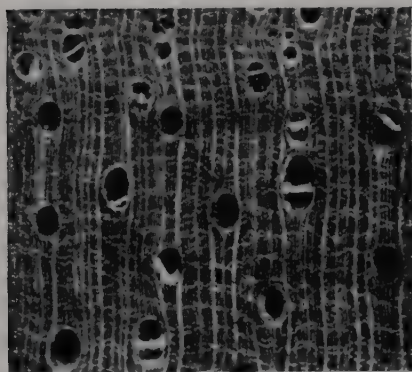
38. *Bombax rhodognaphalon*
Meguza



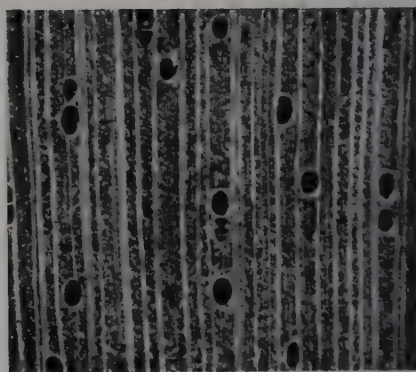
39. *Cavanillesia platanifolia*
Quipo



40. *Ceiba pentandra*
Ceiba



41. *Durio* sp.
Durian

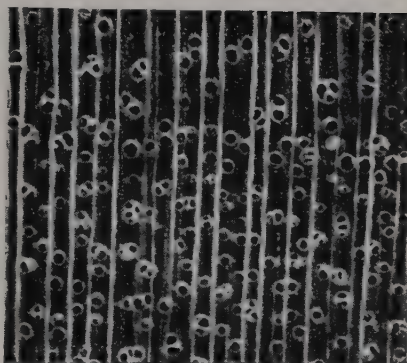


42. *Ochroma lagopus*
Balsa

BORAGINACEAE (43-47)—BURSERACEAE (48)



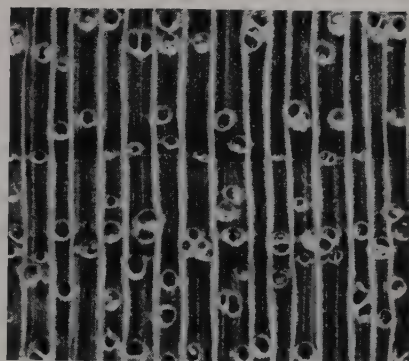
43. *Cordia abyssinica*
Mukomari



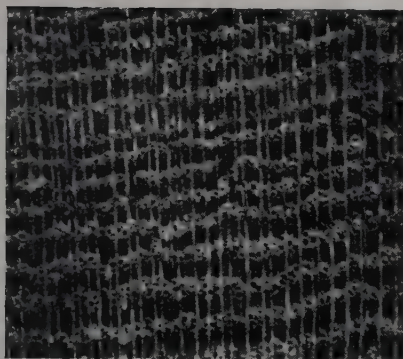
44. *Cordia alliodora*
Ecuador laurel



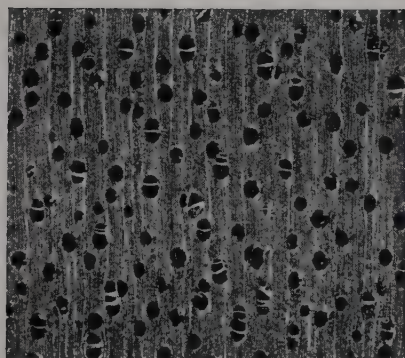
45. *Cordia fragrantissima*
Sandawa



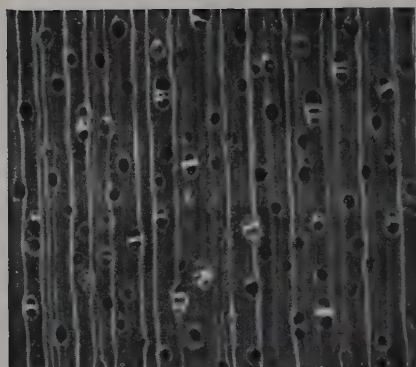
46. *Cordia goeldiana*
Freijo



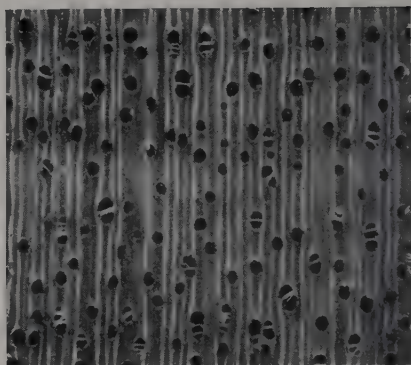
47. *Patagonula americana*
Guajuvira



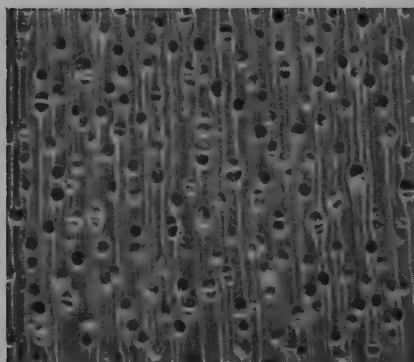
48. *Aucoumea klaineana*
Gaboon



49. *Canarium euphyllum*
Dhup



50. *Canarium schweinfurthii*
Canarium



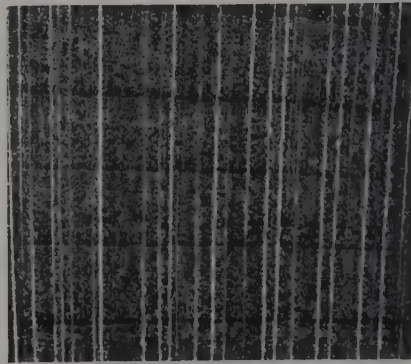
51. *Canarium* sp.
Kedondong



52. *Santiria* sp.
Kerantai



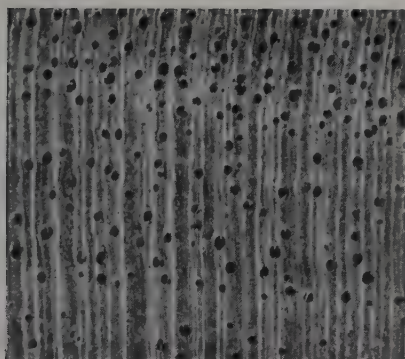
53. *Tetragastris hostmanni*
Salie



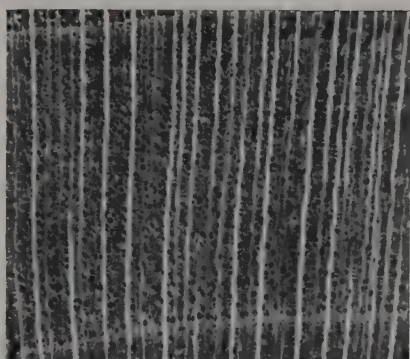
54. *Buxus sempervirens*
European box

CANELLACEAE (55)—CAPRIFOLIACEAE (56, 57)

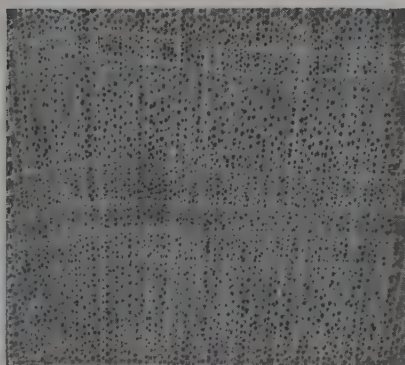
CASUARINACEAE (58)—CELASTRACEAE (59, 60)



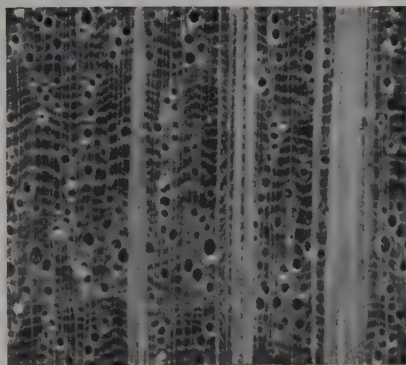
55. *Warburgia ugandensis*
East African greenheart



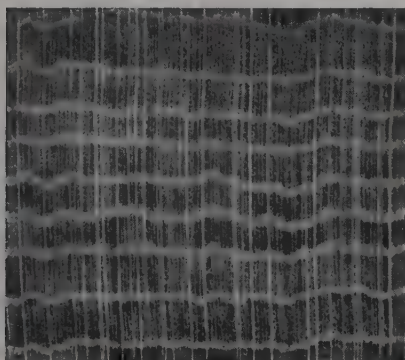
56. *Sambucus nigra*
Elder



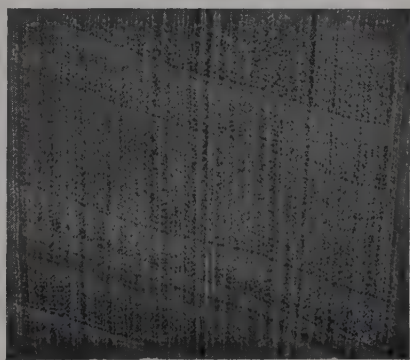
57. *Viburnum opulus*
Guelder rose



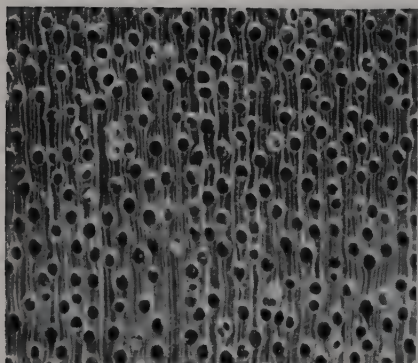
58. *Casuarina torulosa*
She oak



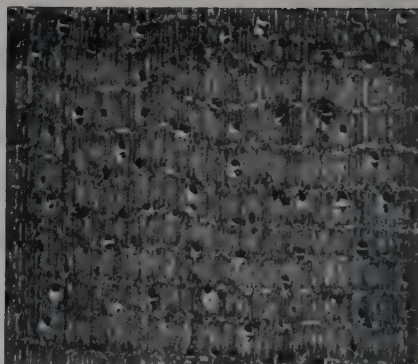
59. *Celastrus acuminata*
Silk bark



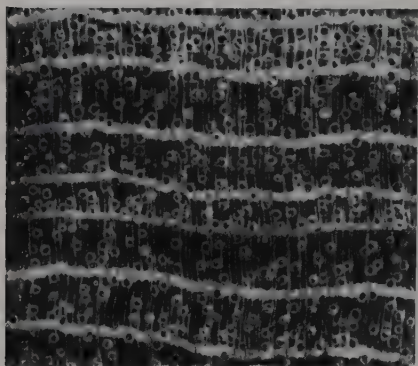
60. *Euonymus europaeus*
Spindlewood



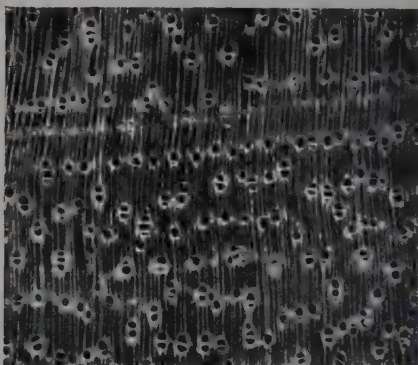
61. *Goupia glabra*
Kabukalli



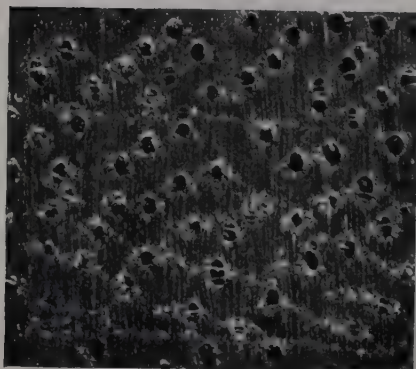
62. *Lophopetalum* sp.
(moderately heavy type) Mata ulat



63. *Lophopetalum* sp.
(heavier type) Mata ulat



64. *Anogeissus acuminata*
Yon

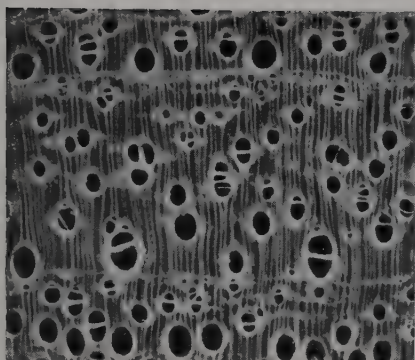


65. *Terminalia alata*
Indian laurel



66. *Terminalia amazonia*
Nargusta

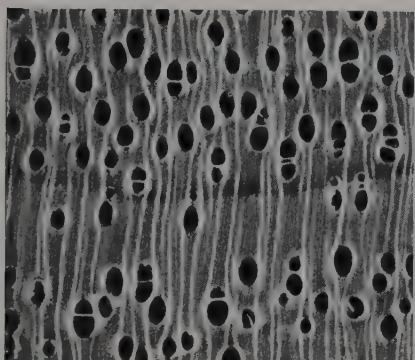
COMBRETACEAE (67-72)



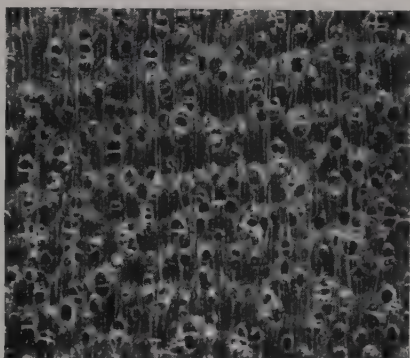
67. *Terminalia arjuna*
Kumbuk



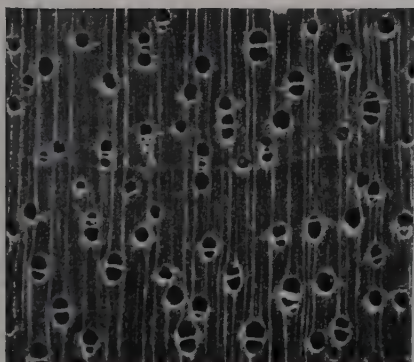
68. *Terminalia bialata*
White chuglam



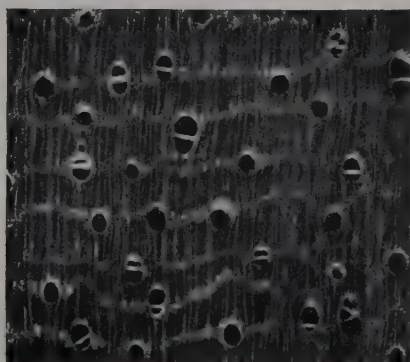
69. *Terminalia ivorensis*
Idigbo



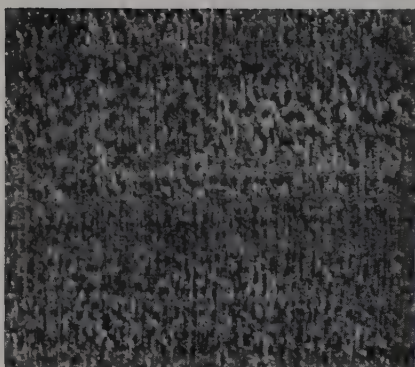
70. *Terminalia paniculata*
Kindal



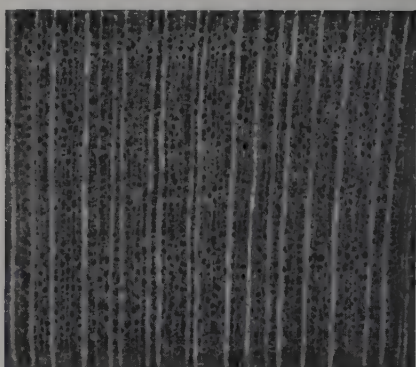
71. *Terminalia procera*
White bombway



72. *Terminalia superba*
Afara



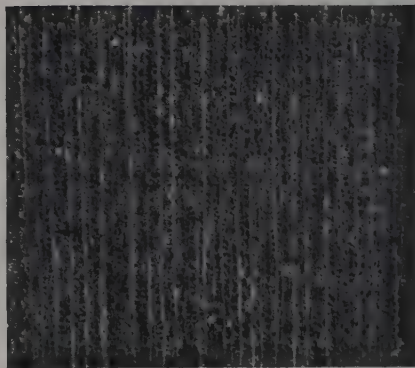
73. *Brachylaena hutchinsii*
Muhuhu



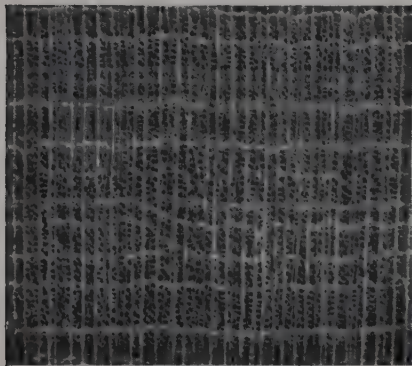
74. *Cornus florida*
Dogwood



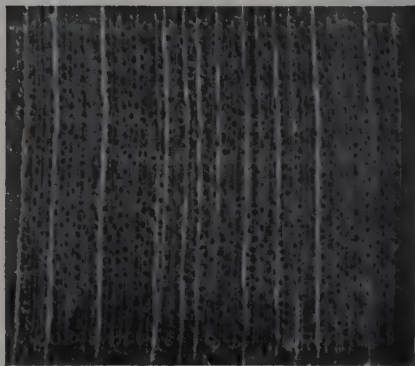
75. *Curtisia faginea*
Assegai wood



76. *Nyssa* sp.
Tupelo



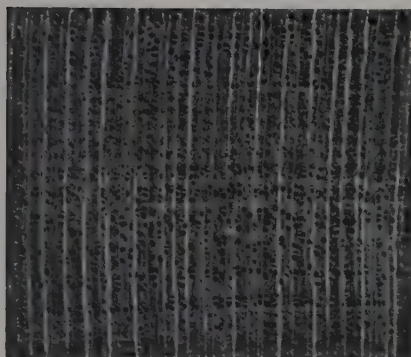
77. *Ceratopetalum apetalum*
Coachwood



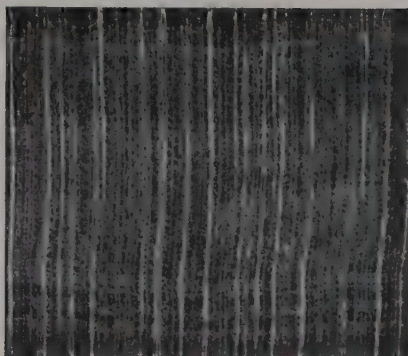
78. *Cunonia capensis*
Red els

CUNONIACEAE (79, 80)—DATISACEAE (81)

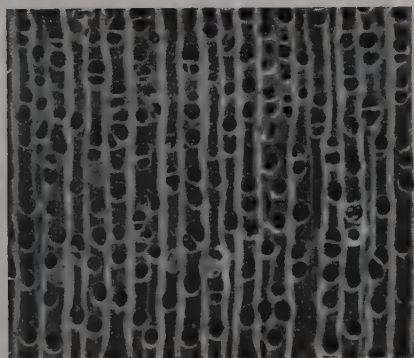
DILLENIAEAE (82)—DIPTEROCARPACEAE (83, 84)



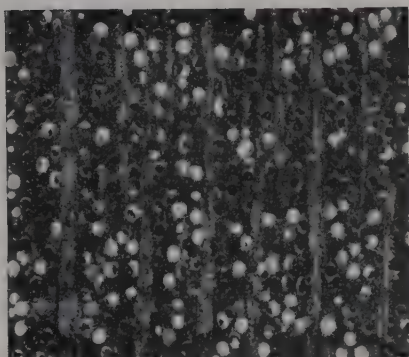
79. *Platylophus trifolius*
White els



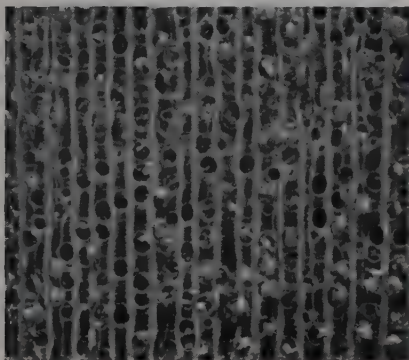
80. *Weinmannia trichosperma*
Tineo



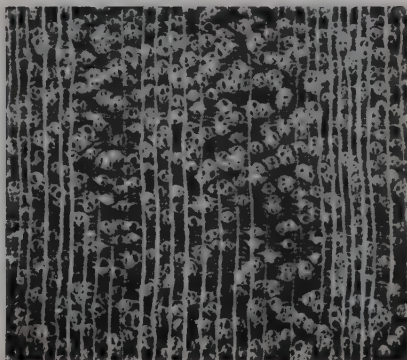
81. *Octomeles sumatrana*
Binuang



82. *Dillenia* sp.
Simpoh

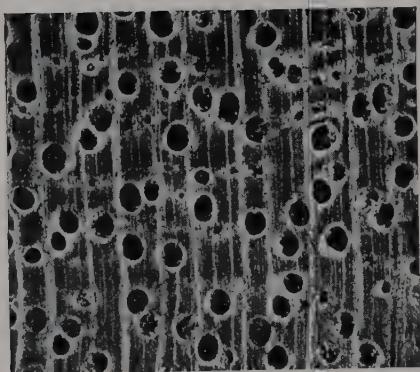


83. *Anisoptera* sp.
Krabak, Mersawa

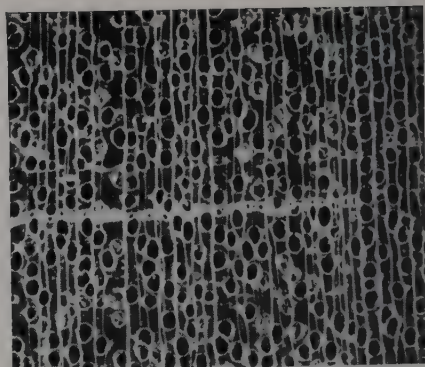


84. *Balanocarpus heimii*
Chengal

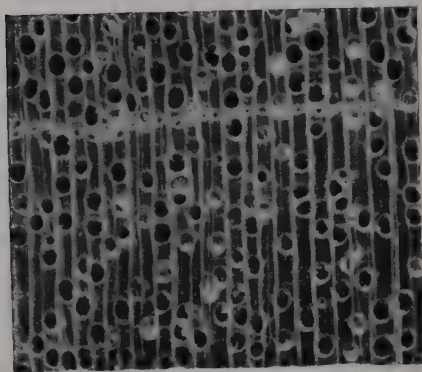
DIPTEROCARPACEAE (85-90)



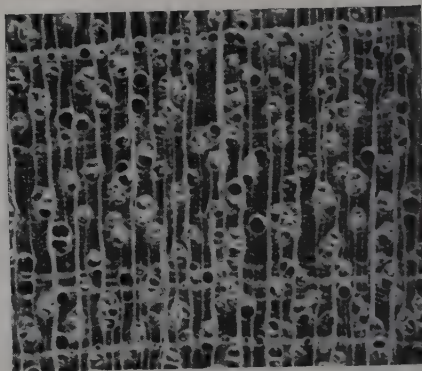
85. *Dipterocarpus* sp.
Gurjun



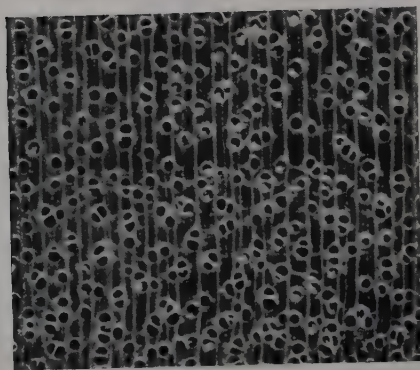
86. *Dryobalanops aromatica*
Borneo camphorwood



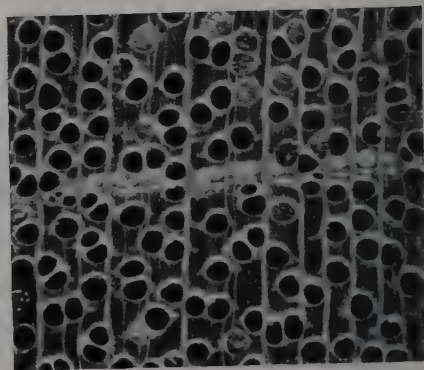
87. *Dryobalanops oblongifolia*
Keladan



88. *Hopea odorata*
Thingan

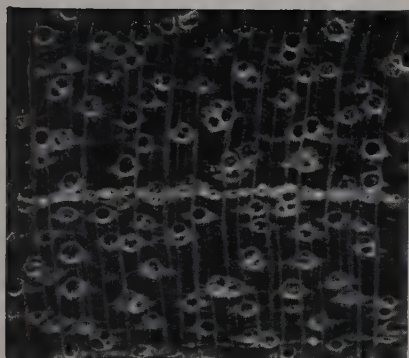


89. *Hopea beccariana*
Merawan

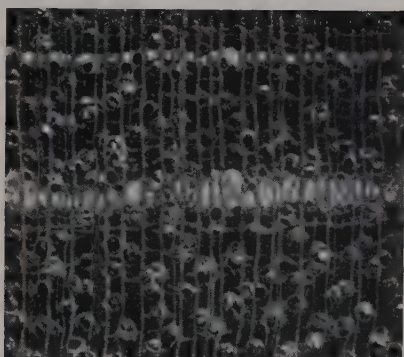


90. *Parashorea malaanonan*
White seraya

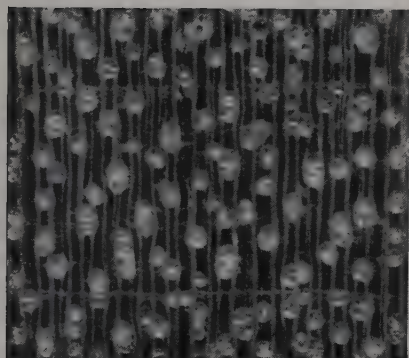
DIPTEROCARPACEAE (91-96)



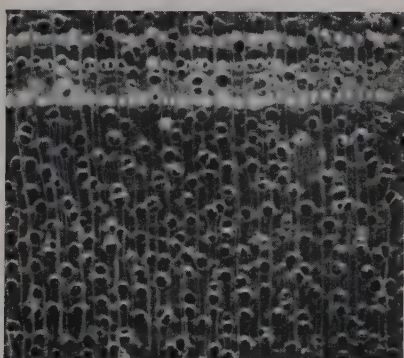
91. *Parashorea stellata*
Thingadu



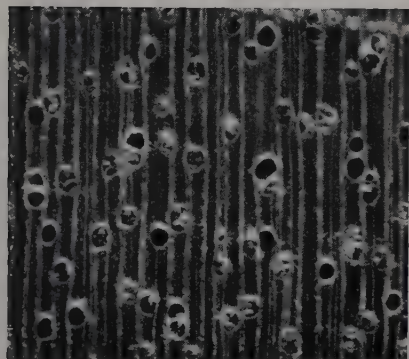
92. *Shorea kunstleri*
Damar laut merah



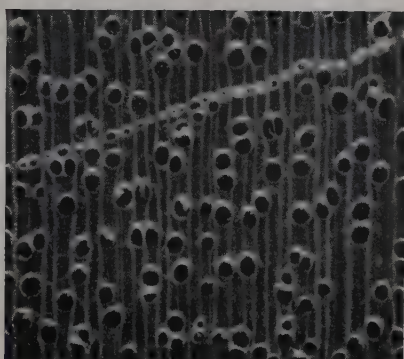
93. *Shorea robusta*
Sal



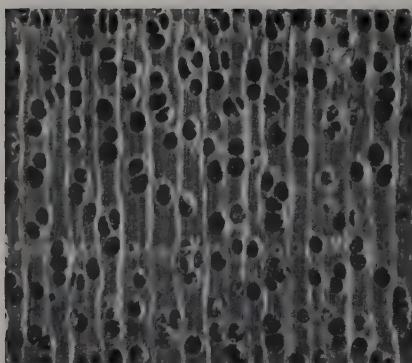
94. *Shorea glauca*
Balau



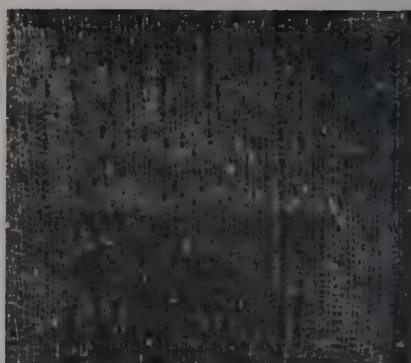
95. *Shorea pauciflora*
Dark red meranti



96. *Shorea bracteolata*
White meranti



97. *Shorea faguetiana*
Yellow meranti



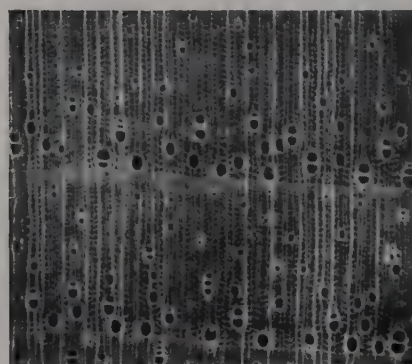
98a. *Diospyros ebenum*
Ceylon ebony



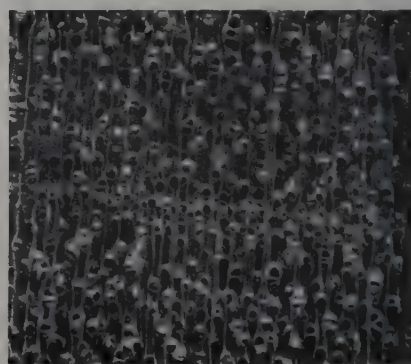
98b. *Diospyros macassar*
Macassar ebony



98c. *Diospyros marmorata*
Andaman marbled wood

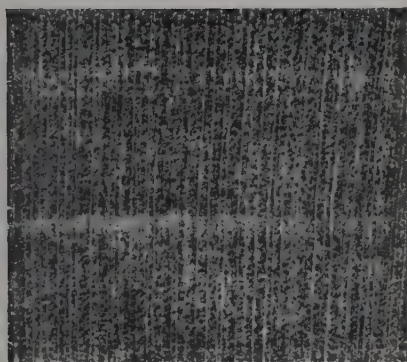


99. *Diospyros virginiana*
Persimmon

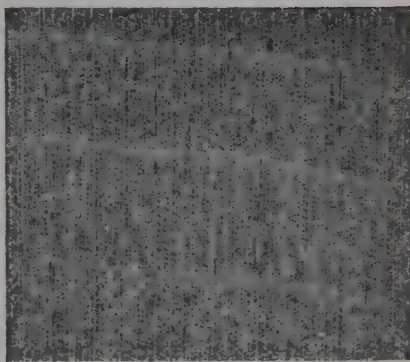


100. *Erythroxylum mannii*
Landa

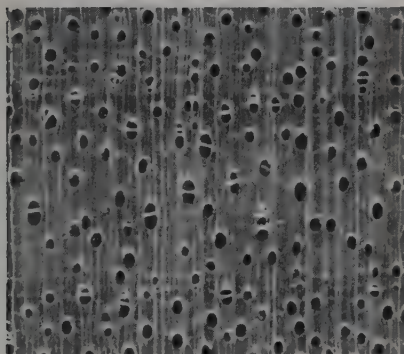
EUCRYPHIACEAE (101)—EUPHORBIACEAE (102–106)



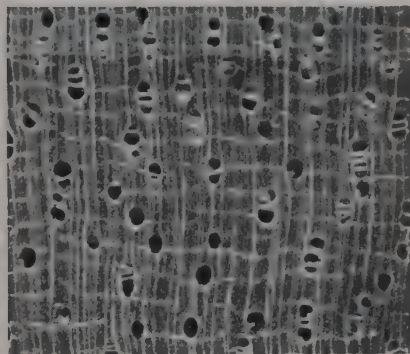
101. *Eucryphia cordifolia*
Ulmo



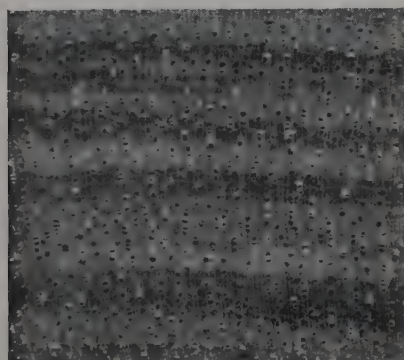
102. *Aextoxicon punctatum*
Olivillo



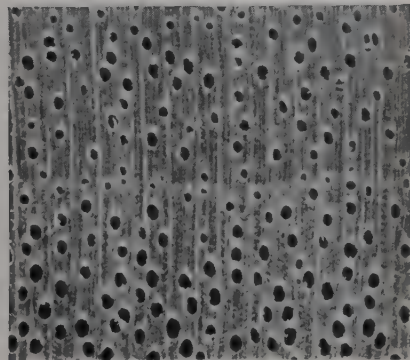
103. *Croton megalocarpus*
Musine



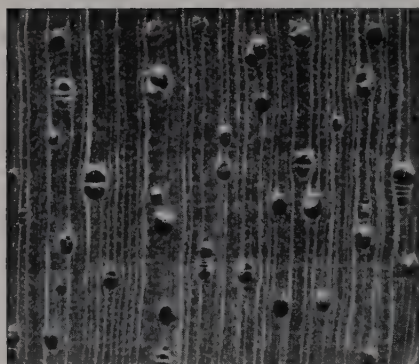
104. *Endospermum malaccense*
Sendok sendok



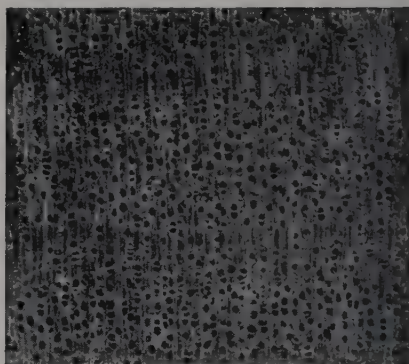
105. *Excoecaria africana*
Tambotie



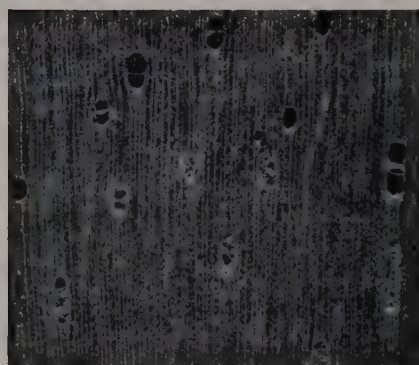
106. *Hieronyma alchorneoides*
Pilon



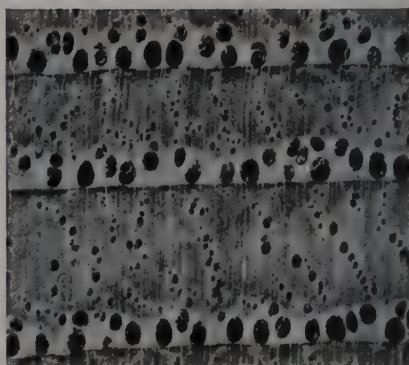
107. *Hura crepitans*
Hura



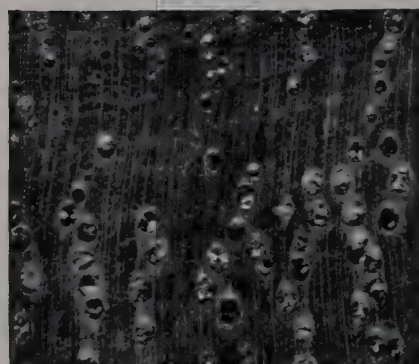
108. *Oldfieldia africana*
African oak



109. *Ricinodendron rautanenii*
Mugongo



110. *Castanea sativa*
Sweet chestnut

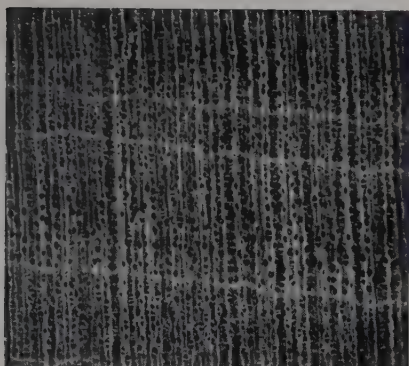


111. *Castanopsis indica*
Indian sweet chestnut

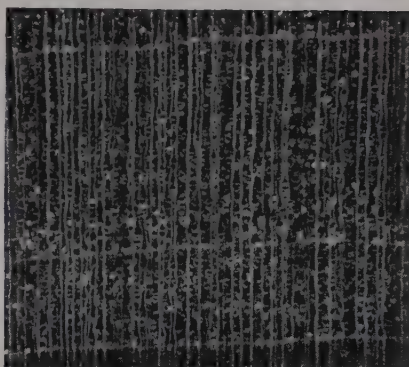


112. *Fagus sylvatica*
European beech

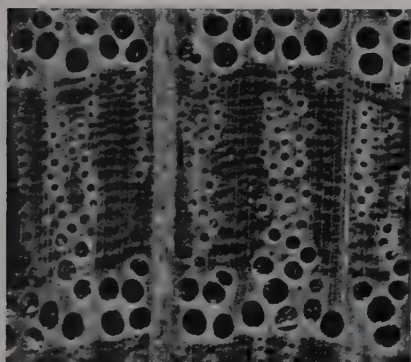
FAGACEAE (113-116)



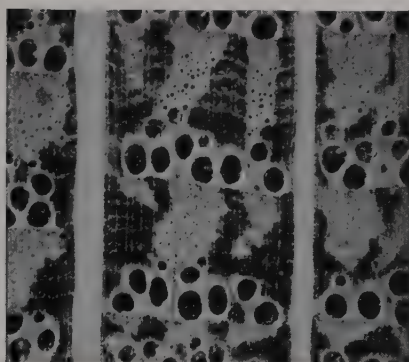
113. *Nothofagus cunninghamii*
Tasmanian myrtle



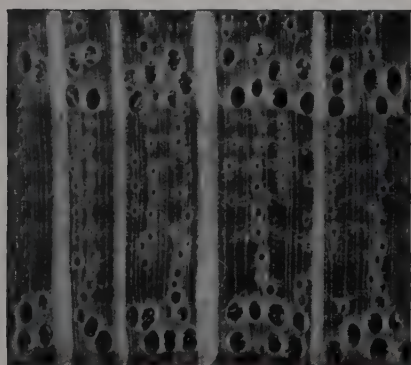
114. *Nothofagus procera*
Rauli beech



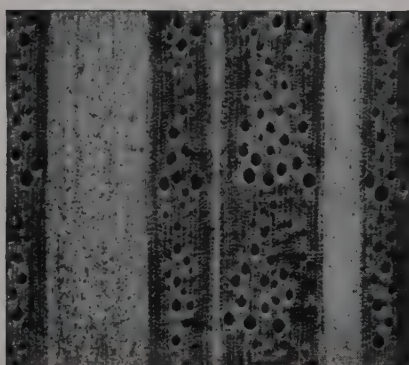
115a. *Quercus borealis*
American red oak



115b. *Quercus robur*
European oak



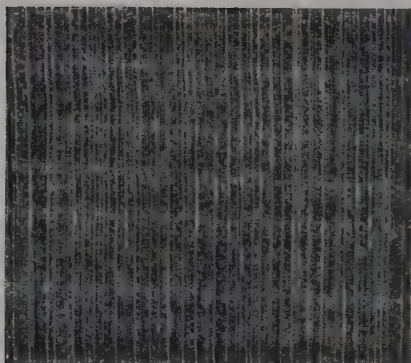
115c. *Quercus cerris*
Turkey oak



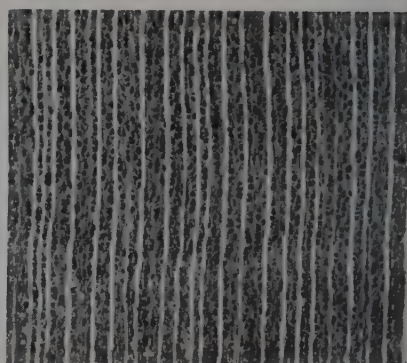
116. *Quercus ilex*
Evergreen oak

FLACOURTIACEAE (117, 118)—GONYSTYLACEAE (119)

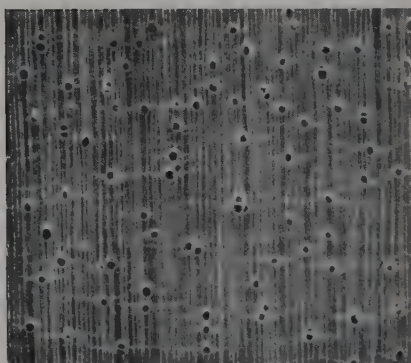
GUTTIFERAE (120–122)



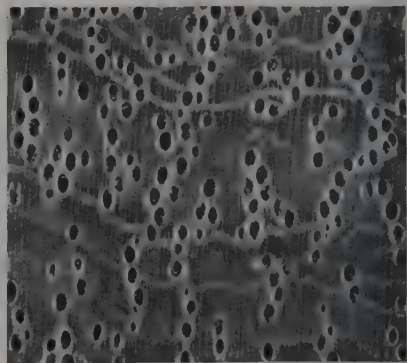
117. *Gossypiospermum praecox*
Maracaibo boxwood



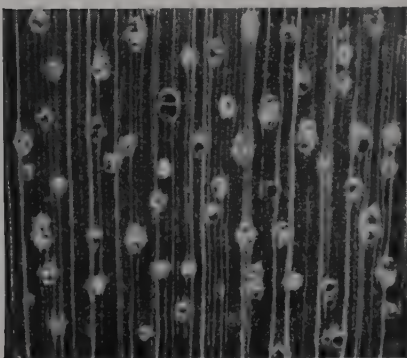
118. *Scottellia coriacea*
Odoko



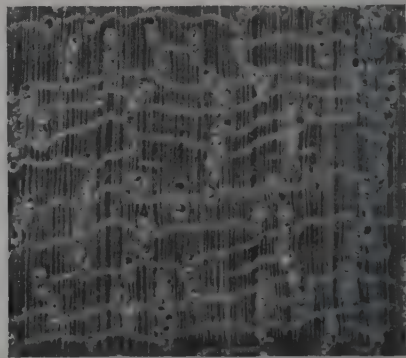
119. *Gonystylus* sp.
Ramin, Melawis



120. *Calophyllum brasiliense*
Santa maria



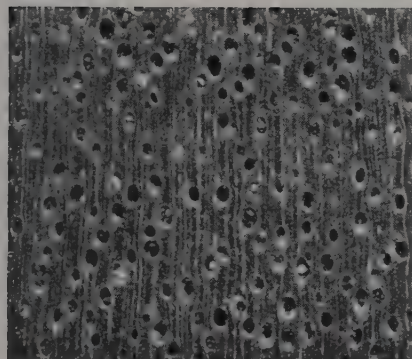
121. *Cratoxylon arborescens*
Geronggang



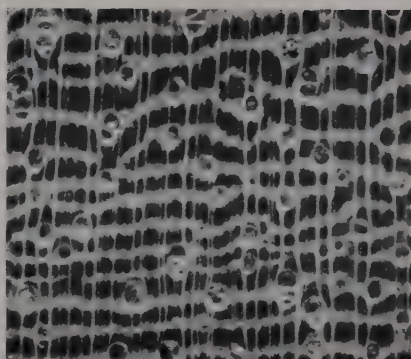
122. *Mesua ferrea*
Mesua

GUTTIFERAE (123-125)—HAMAMELIDACEAE (126)

HIPPOCASTANACEAE (127, 128)



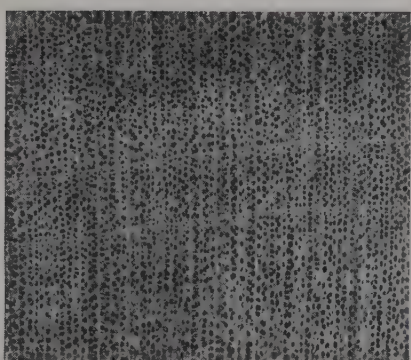
123. *Ochrocarpus africanus*
Mammea



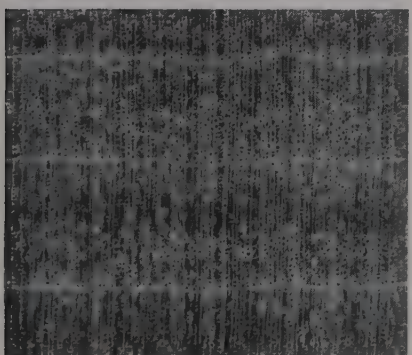
124. *Symphonia gabonensis*
Osol



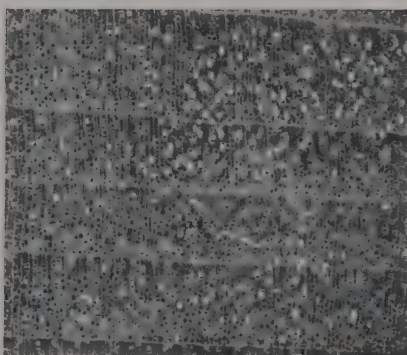
125. *Symphonia globulifera*
Matakkie



126. *Liquidambar styraciflua*
American red gum

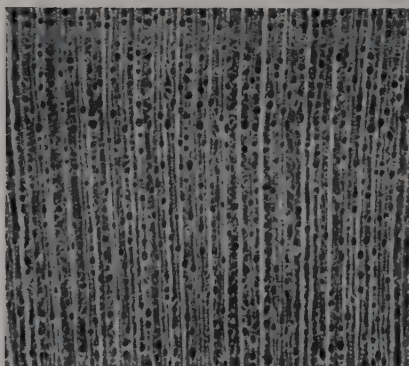


127. *Aesculus hippocastanum*
European horse-chestnut

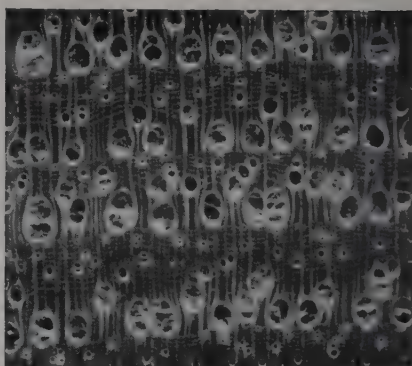


128. *Aesculus turbinata*
Japanese horse-chestnut

PHOTOMICROGRAPHS OF HARDWOODS
ICACINACEAE (129)—JUGLANDACEAE (130, 131)
LAURACEAE (132–134)



129. *Apodytes dimidiata*
Mugonyone



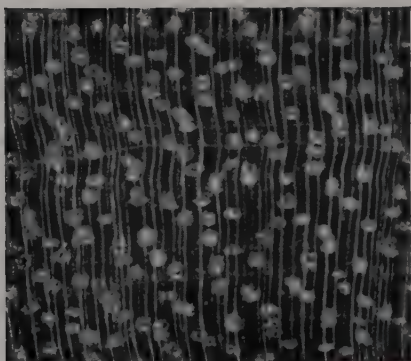
130. *Carya* sp.
Hickory



131. *Juglans regia*
European walnut



132. *Alseodaphne semecarpifolia*
Ranie

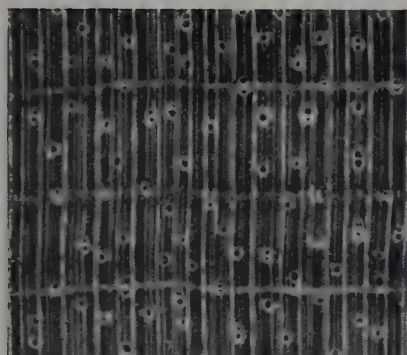


133. *Aniba canelilla*
Ashmud

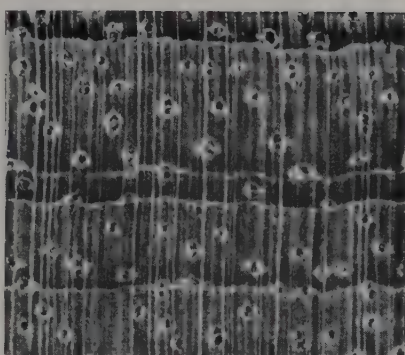


134. *Aniba panurensis*
Yellow silverballi

LAURACEAE (135-140)



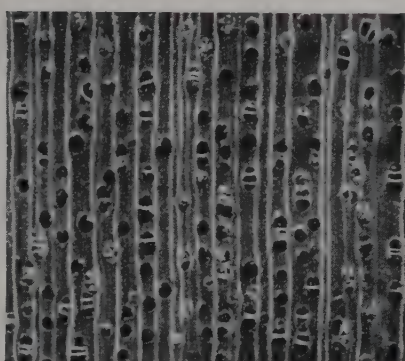
135. *Beilschmiedia tawa*
Tawa



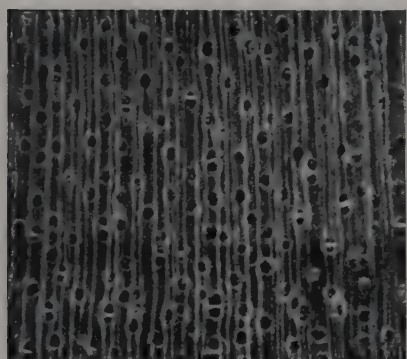
136. *Endiandra palmerstonii*
Queensland walnut



137. *Eusideroxylon zwageri*
Belian



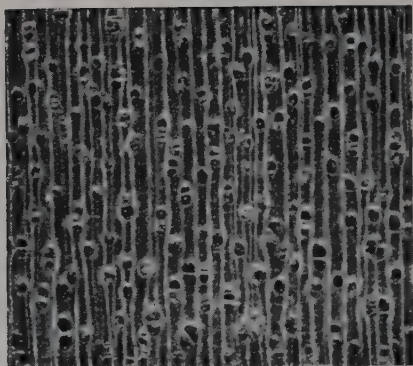
138. *Nectandra* sp. or *Ocotea* sp.
Jigua



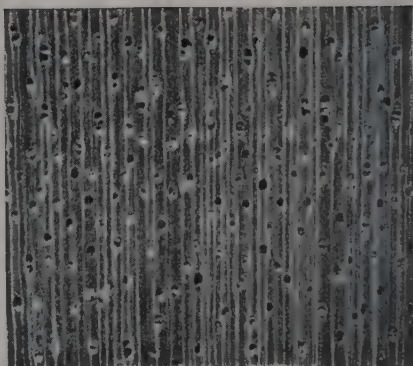
139. *Nectandra* sp. or *Ocotea* sp.
Louro preto



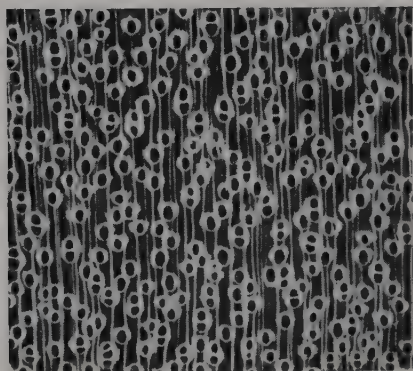
140. ? *Nectandra rectinervia*
Alcanfor



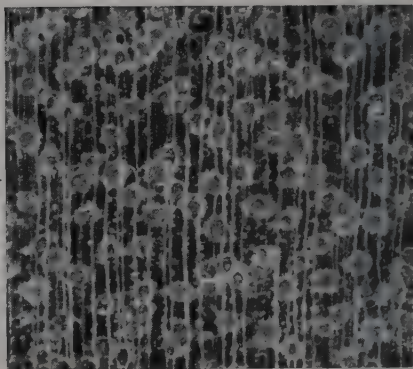
141. *Ocotea barcellensis*
Louro inamuhy



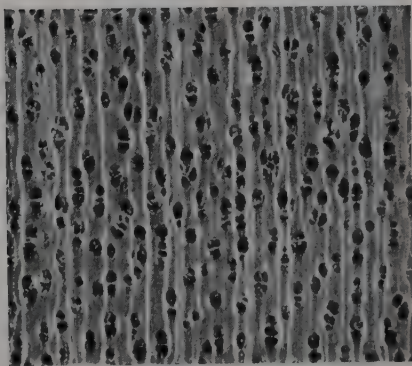
142. *Ocotea bullata*
Stinkwood



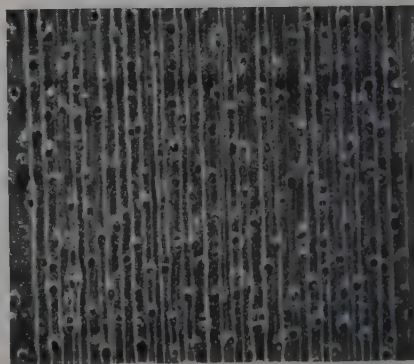
143. *Ocotea rodiaei*
Greenheart



144. *Ocotea rubra*
Red louro



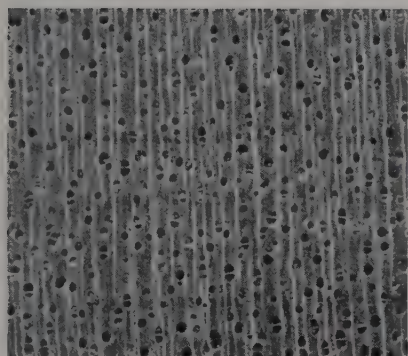
145. *Ocotea usambarensis*
East African camphorwood



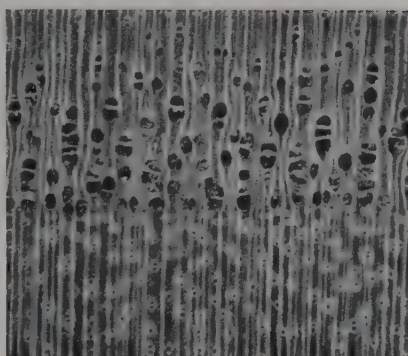
146. *Persea lingue*
Lingue

LAURACEAE (147-149)—LECYTHIDACEAE (150)

LEGUMINOSAE (151, 152)



147. *Phoebe porosa*
Imbaya



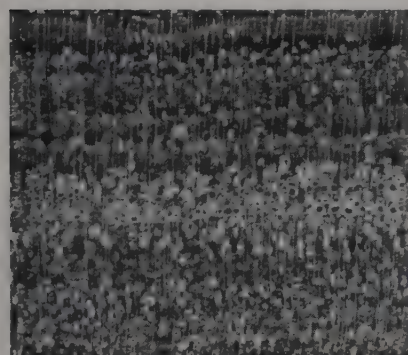
148. *Sassafras variifolium*
Sassafras



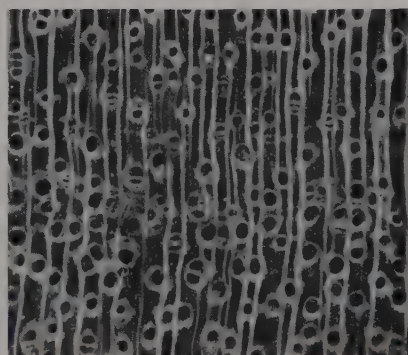
149. *Umbellularia californica*
Pacific myrtle



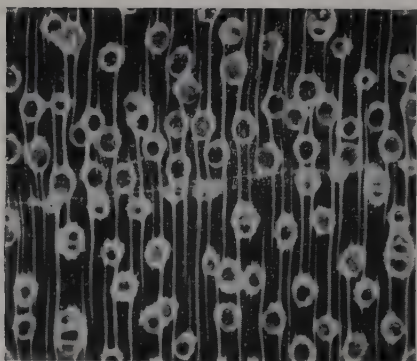
150. *Cariniana* sp.
Red jequitiba



151. *Acacia aneura*
Mulga



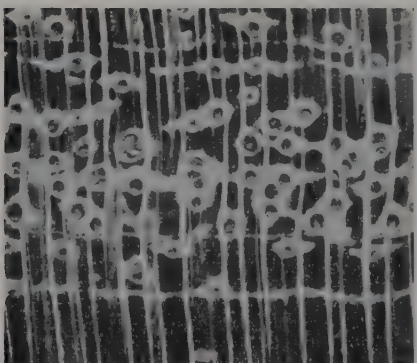
152. *Acacia arabica*
Babul



153. *Acacia catechu*
Cutch



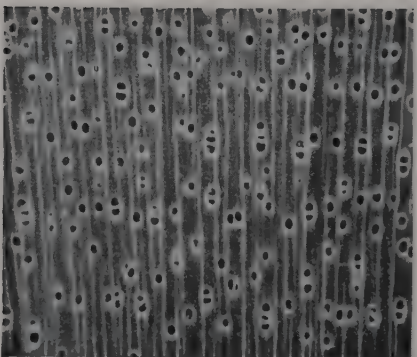
154. *Acacia dealbata*
Silver wattle



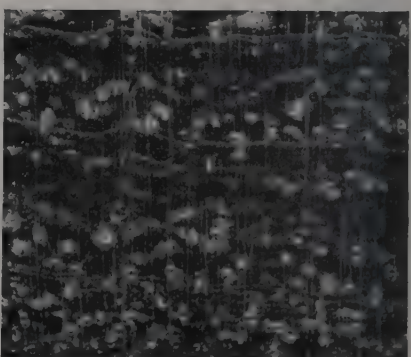
155. *Acacia giraffae*
Camel thorn



156. *Acacia melanoxylon*
Australian blackwood

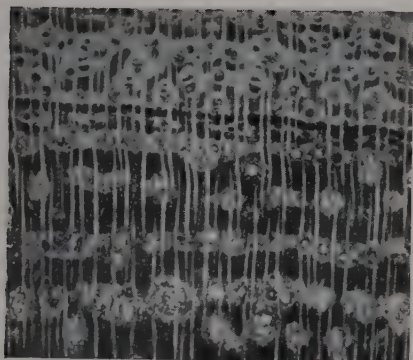


157. *Acacia mollissima*
Black wattle

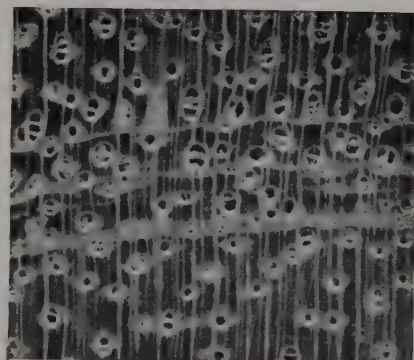


158. *Acacia pendula*
Myall

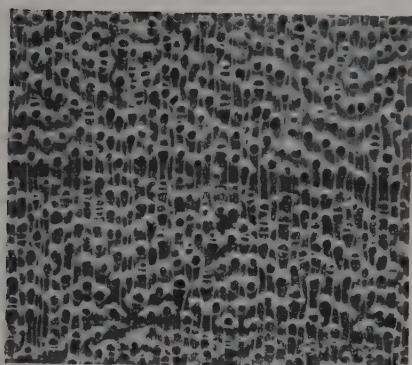
LEGUMINOSAE (159-164)



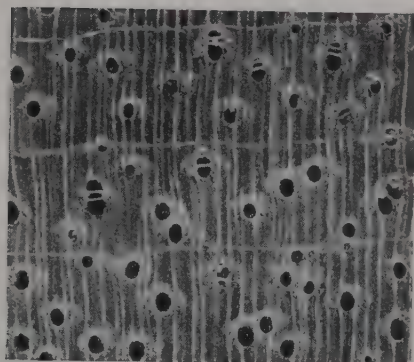
159. *Acacia senegal*
Dakwora



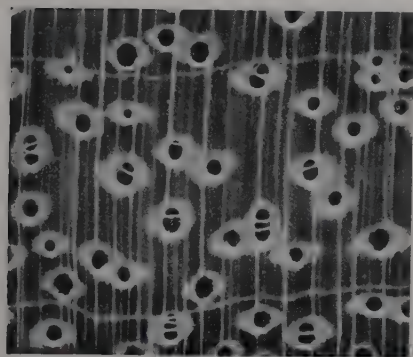
160. *Acrocarpus fraxinifolius*
Mundani



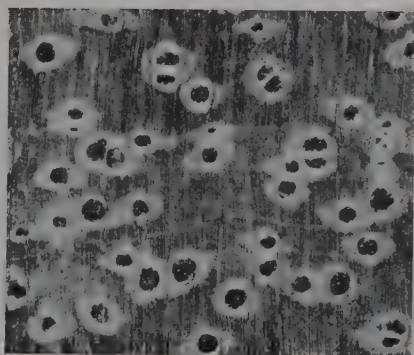
161. *Afrormosia elata*
Kokrodua



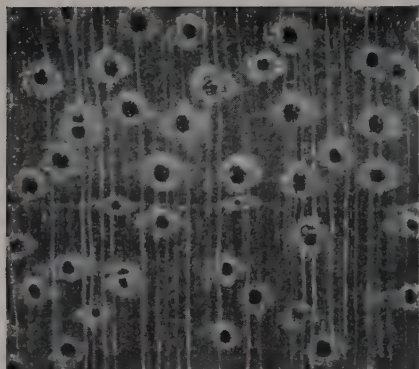
162. *Afzelia* sp.
Afzelia



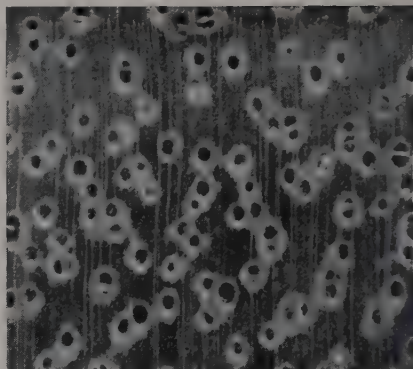
163. *Albizzia zygia*
Albizzia



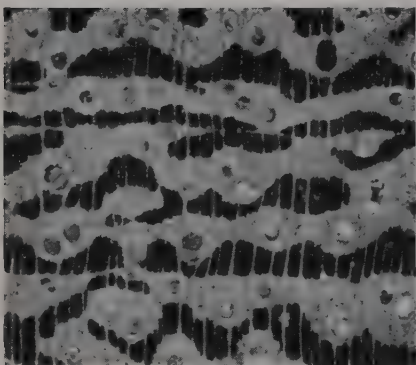
164. *Albizzia lebbeck*
Kokko



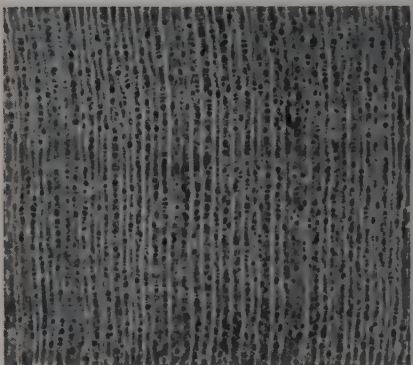
165. *Albizzia procera*
White siris



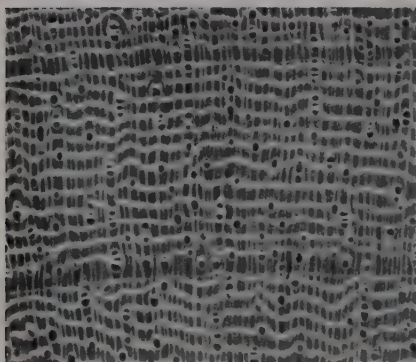
166. *Albizzia xanthoxylon*
Yellow siris



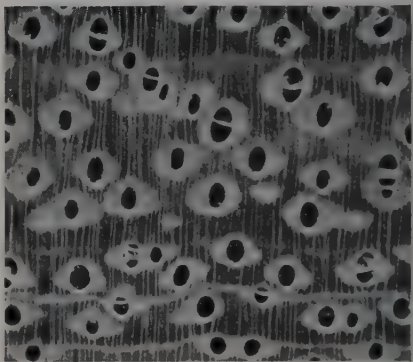
167. *Andira inermis*
Angelin



168. *Baikiaea plurijuga*
Rhodesian teak

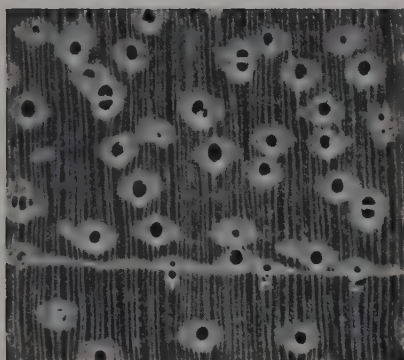


169. *Baphia nitida*
Camwood

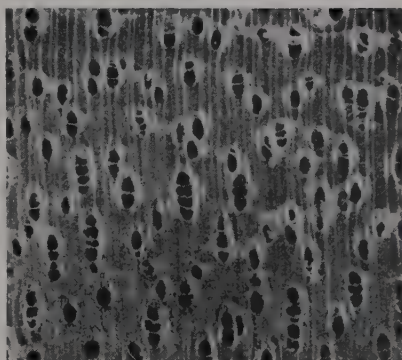


170. *Berlinia auriculata*
Berlinia

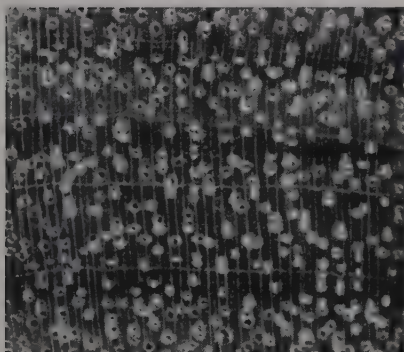
LEGUMINOSAE (171-176)



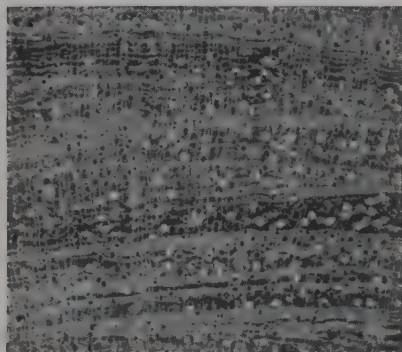
171. *Brachystegia eurycoma*
Okwen



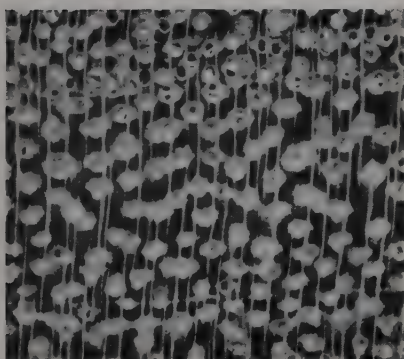
172. *Bowdichia* sp.
Black sucupira



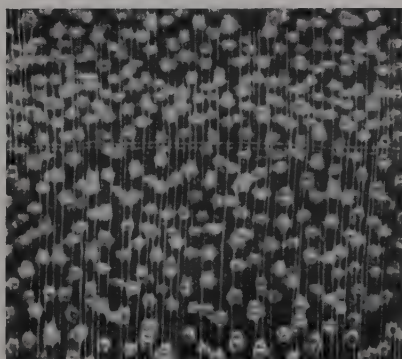
173. *Brasilettia violacea*
Braziletto



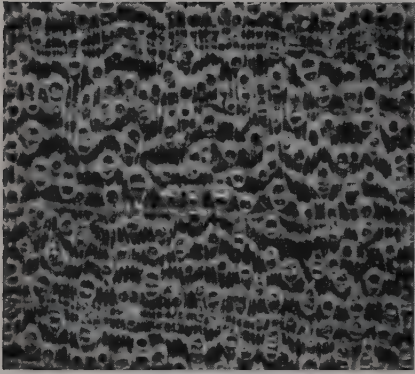
174. *Brya ebenus*
Cocus



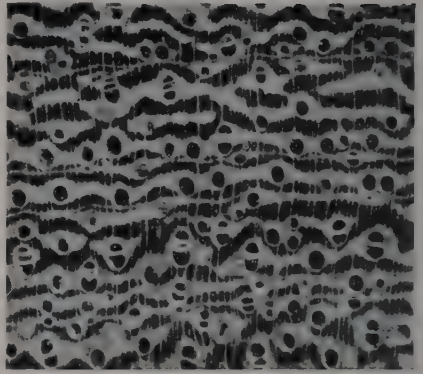
175. *Burkea africana*
Mucarala



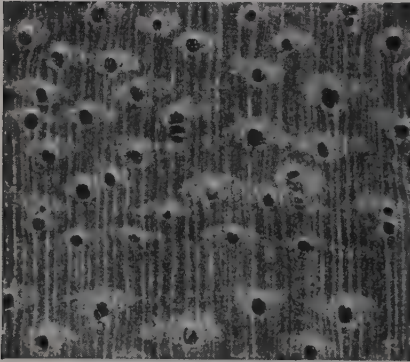
176. *Caesalpinia echinata*
Brazilwood



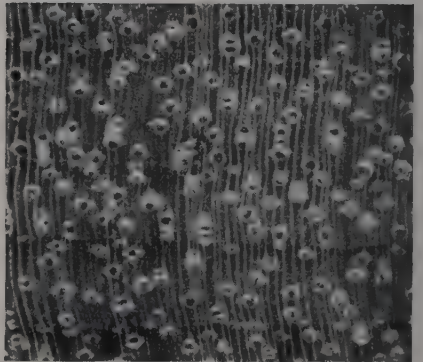
177. *Caesalpinia granadillo*
Partridge wood



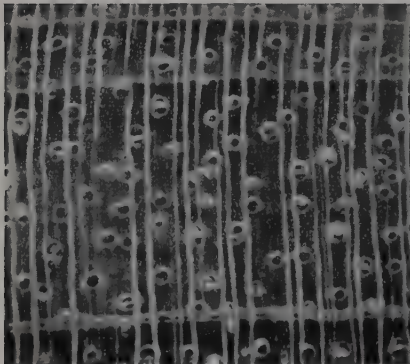
178. *Cassia fistula*
Indian laburnum



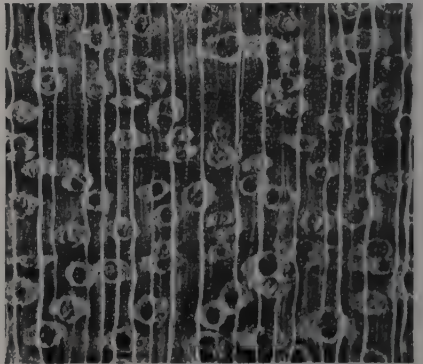
179. *Castanospermum australe*
Black bean



180. *Centrolobium* sp.
Amarillo

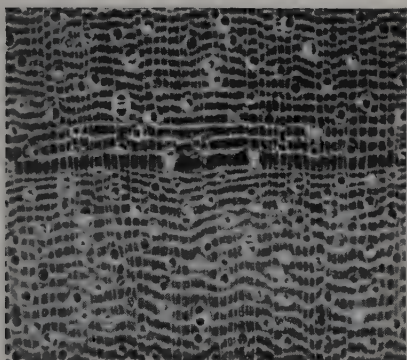


181. *Copaifera coleosperma*
Rhodesian copalwood

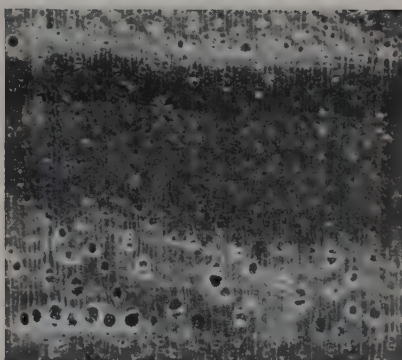


182. *Cylicodiscus gabunensis*
Okan

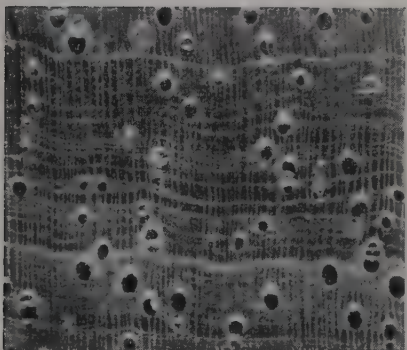
LEGUMINOSAE (183-188)



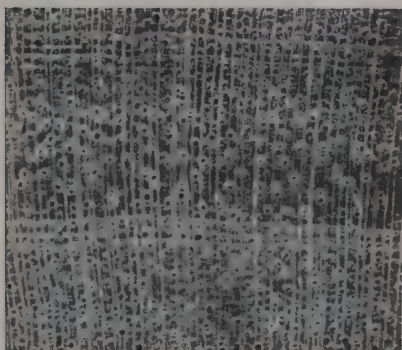
183. *Cynometra alexandri*
Muhimbi



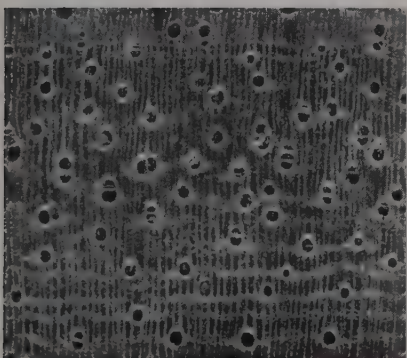
184. *Dalbergia* sp.
Brazilian tulip wood



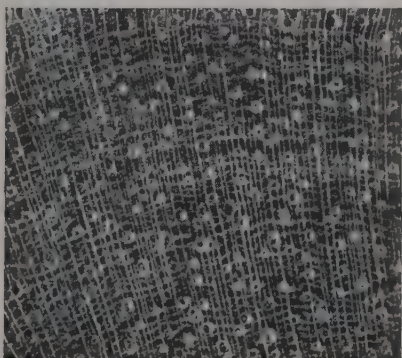
185. *Dalbergia nigra*
Brazilian rosewood



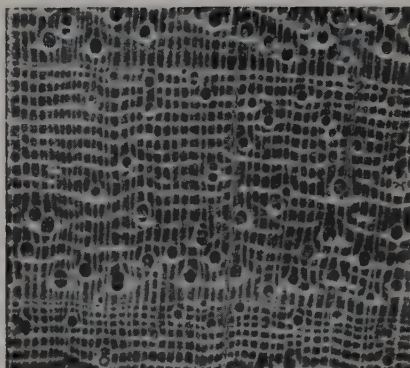
186. *Dalbergia cearensis*
Kingwood



187. *Dalbergia latifolia*
Indian rosewood



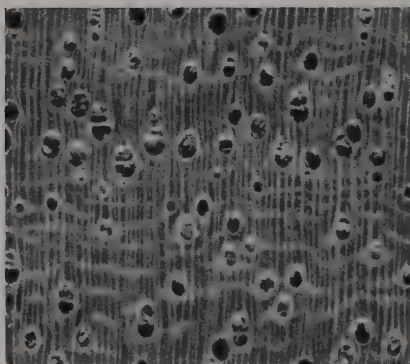
188. *Dalbergia melanoxylon*
African blackwood



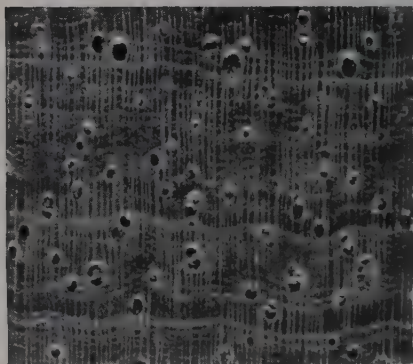
189. *Dalbergia oliveri*
Burma tulip wood



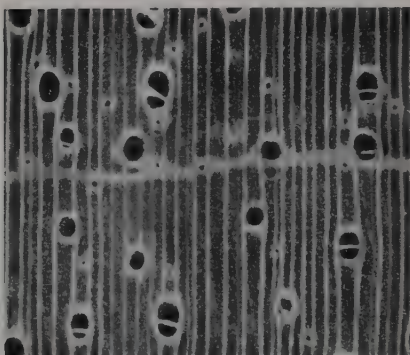
190. *Dalbergia retusa*
Cocobolo



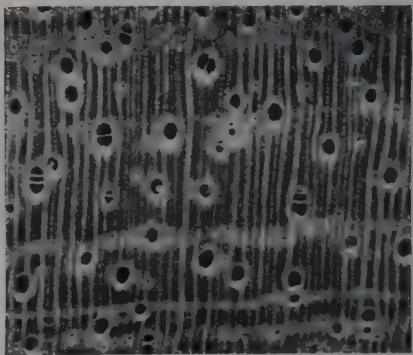
191. *Dalbergia sissoo*
Sissoo



192. *Dalbergia stevensonii*
Honduras rosewood

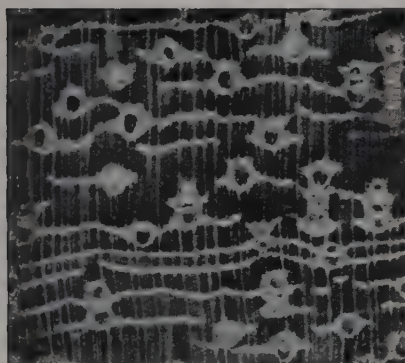


193. *Daniellia ogea*
Ogea



194. *Daniellia oliveri*
Daniellia

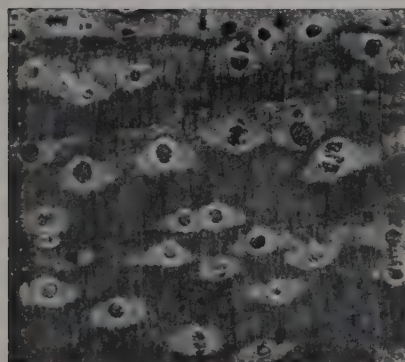
LEGUMINOSAE (195-200)



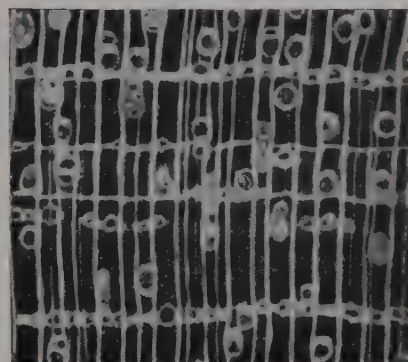
195. *Dicorynia paraensis*
Angelique



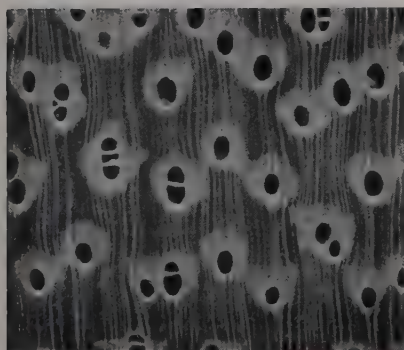
196. *Distemonanthus benthamianus*
Ayan



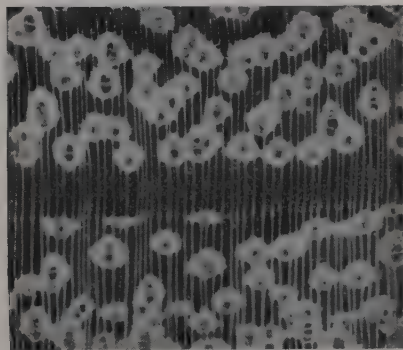
197. *Enterolobium cyclocarpum*
Guanacaste



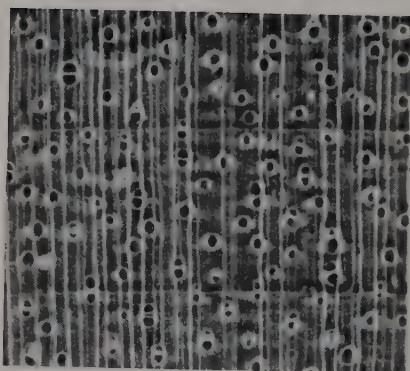
198. *Eperua falcata*
Wallaba



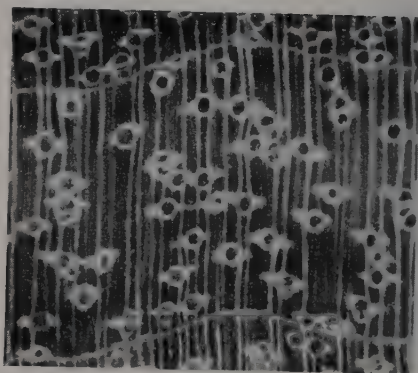
199. *Erythrophloeum guineense*
Tali



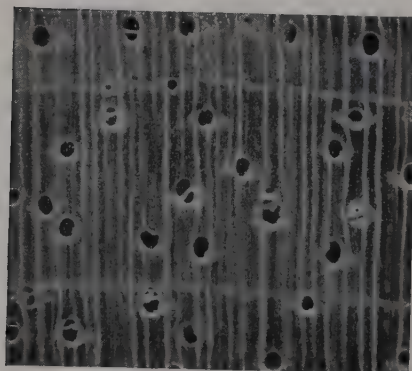
200. *Ferreirea spectabilis*
Yellow sucupira



201. *Gossweilerodendron balsamiferum*
Agba



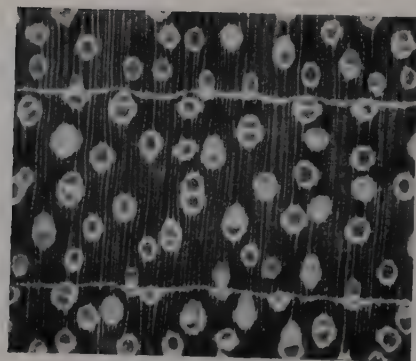
202. *Guibourtia* sp.
Bubinga



203. *Hymenaea courbaril*
Courbaril



204. *Intsia bakeri*
Merbau

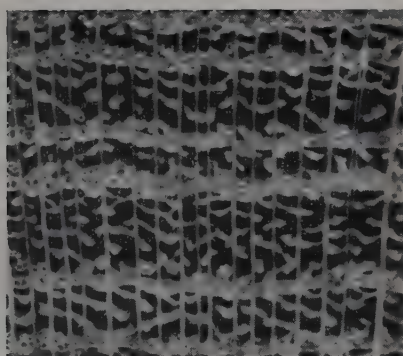


205. *Isoberlinia paniculata*
Mutondo

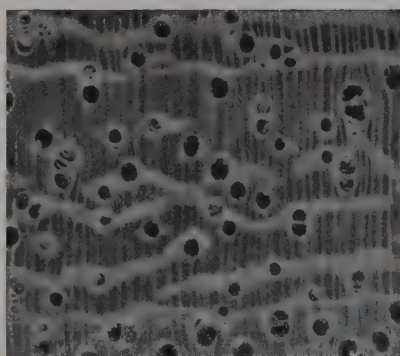


206. *Koopassia malaccensis*
Kempas

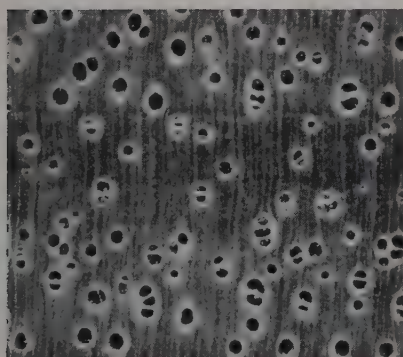
LEGUMINOSAE (207-212)



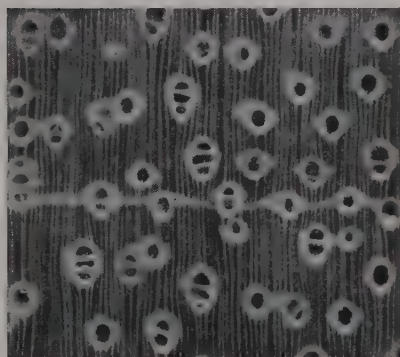
207. *Laburnum anagyroides*
Laburnum



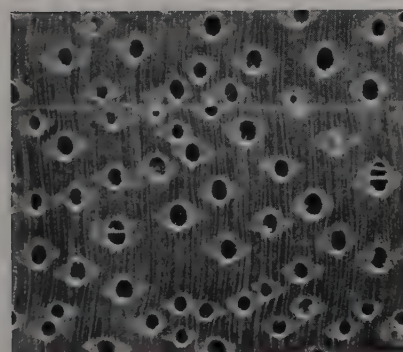
208. *Lonchocarpus castilloi*
Black cabbage-bark



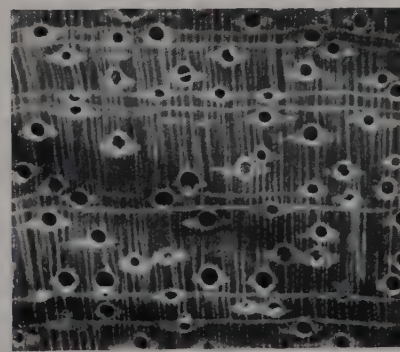
209. *Lysiloma latisiliqua*
Sabicu



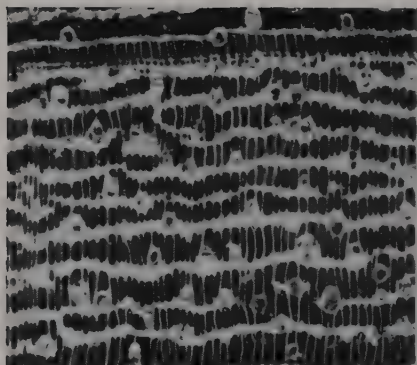
210. *Macrolobium coeruleoides*
Bomanga



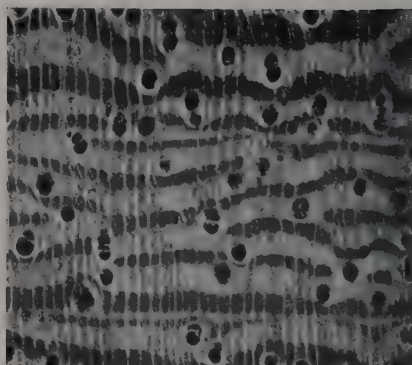
211. *Macrolobium dewevrei*
Ditshipi



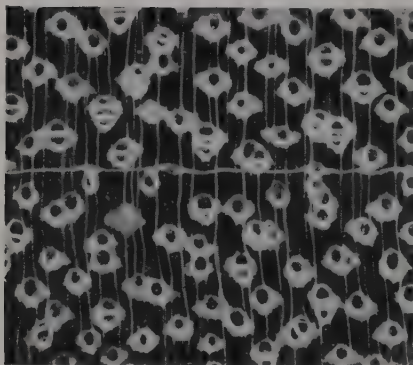
212. *Microberlinia brazzavillensis*
Zebrano



213. *Millettia pendula*
Thinwin



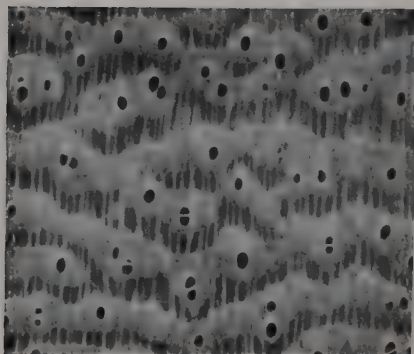
214. *Millettia stuhlmannii*
Panga panga



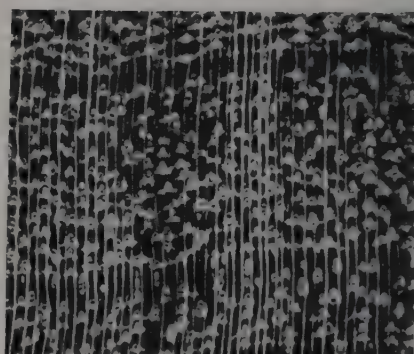
215. *Mora excelsa*
Mora



216. *Myrocarpus fastigiatus*
Cabriuva



217. *Parkia filicoidea*
Munyesi

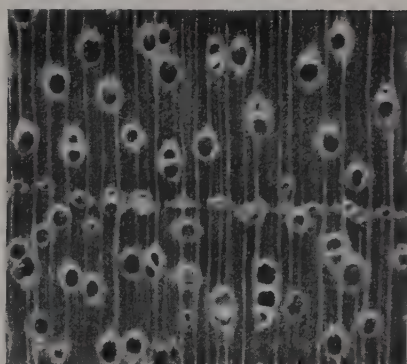


218. *Peltogyne porphyrocardia*
Purpleheart

LEGUMINOSAE (219-224)



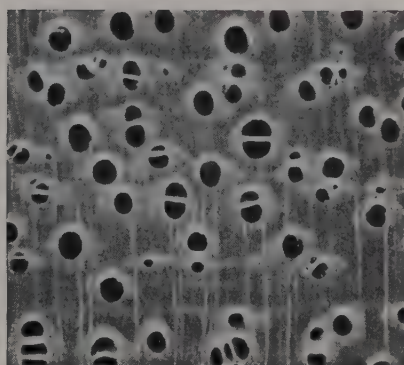
219. *Peltogyne pubescens*
Purpleheart



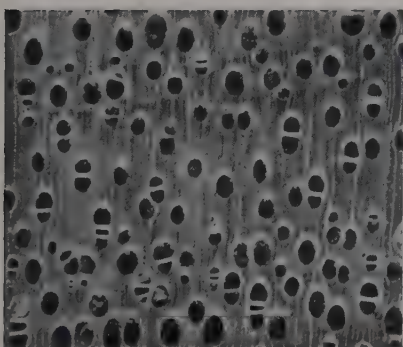
220. *Piptadenia africana*
Dahoma



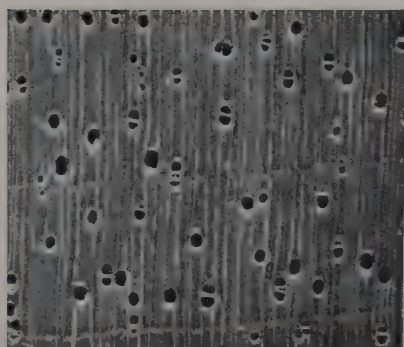
221. *Pithecellobium trapezifolium*
Puni



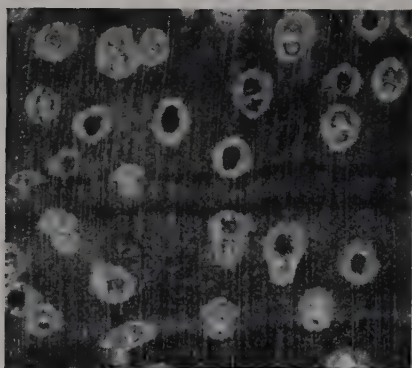
222. *Pithecellobium confertum*
Kungkur



223. *Plathymenia reticulata*
Vinhatico



224. *Prioria copaifera*
Cativo



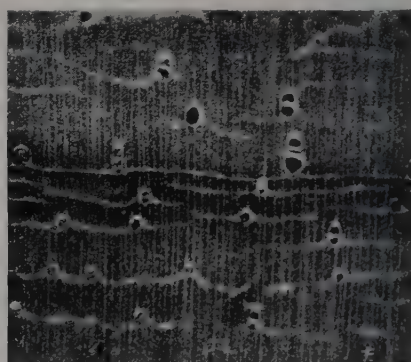
225. *Pseudosamanea guachapele*
Guachapele



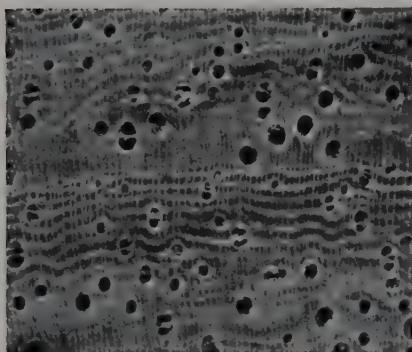
226. *Pterocarpus angolensis*
Muninga



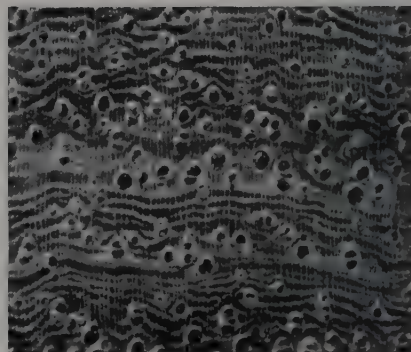
227. *Pterocarpus dalbergioides*
Andaman padauk



228. *Pterocarpus indicus*
Amboyna



229. *Pterocarpus macrocarpus*
Burma padauk

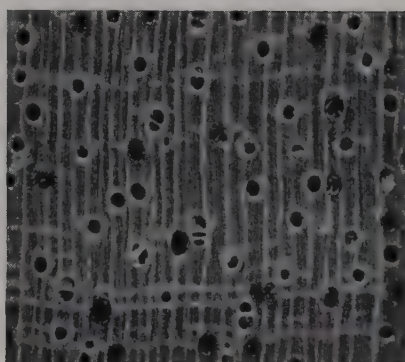


230. *Pterocarpus pedatus*
Maidu

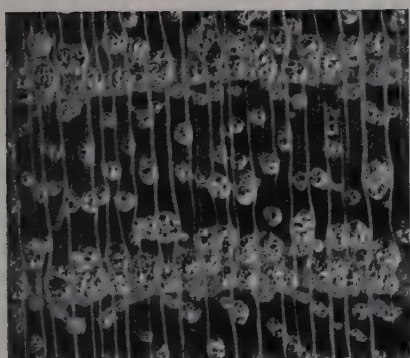
LEGUMINOSAE (231-236)



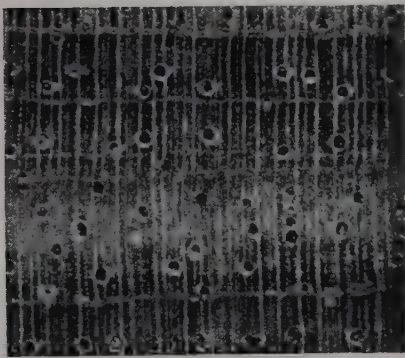
231. *Pterocarpus soyauxii*
African padauk



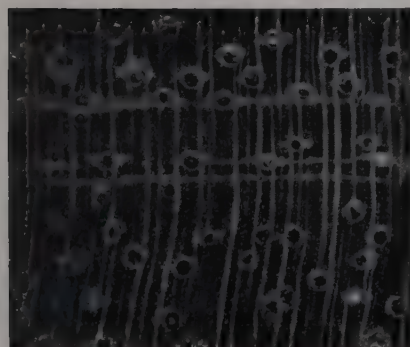
232. *Pterygopodium oxyphyllum*
Tola chimfuta



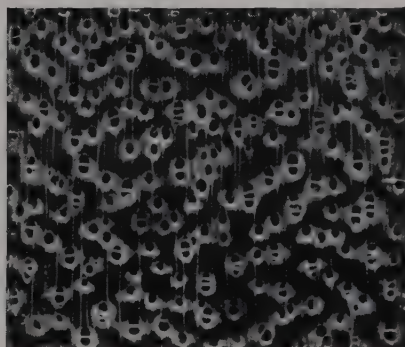
233. *Robinia pseudoacacia*
Robinia



234. *Sindora coriacea*
Sepetir



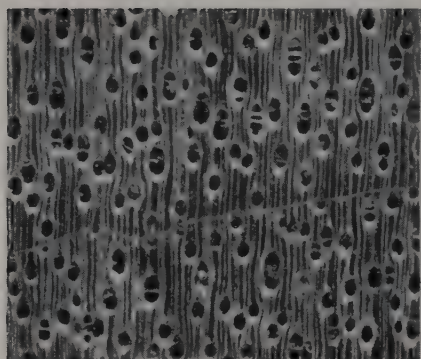
235. *Trachylobium verrucosum*
Msandarusi



236. *Vouacapoua americana*
Acapu

LEGUMINOSAE (237)—LOGANIACEAE (238, 239)

LYTHRACEAE (240)—MAGNOLIACEAE (241, 242)



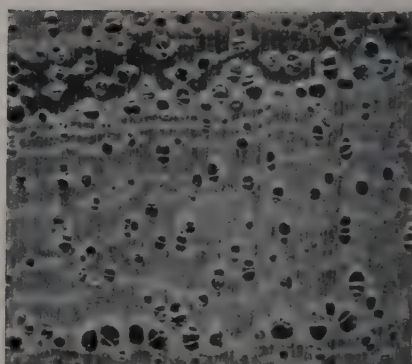
237. *Xylia dolabriformis*
Pyinkado



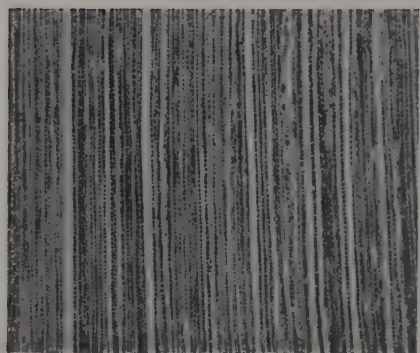
238. *Fagraea fragrans*
Anan



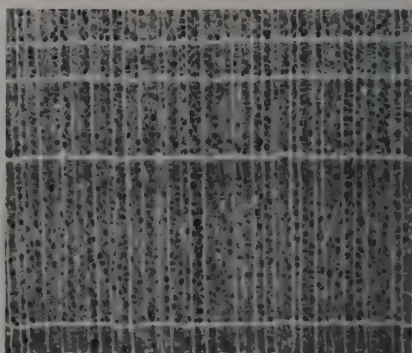
239. *Strychnos* sp.
Shekoye



240. *Lagerstroemia hypoleuca*
Andaman pynma

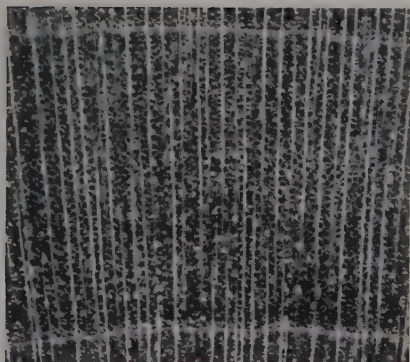


241. *Drimys winteri*
Canelo

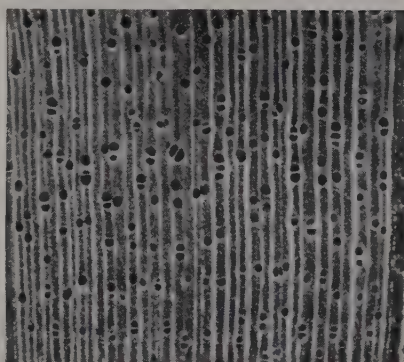


242. *Liriodendron tulipifera*
American whitewood

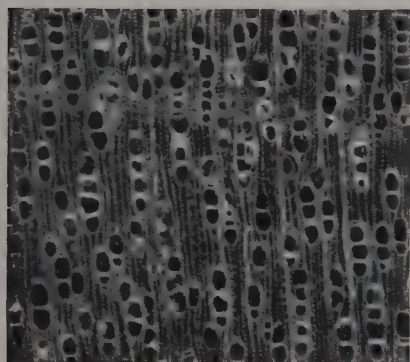
MAGNOLIACEAE (243)—MALVACEAE (244)
MARCGRAVIACEAE (245)—MELIACEAE (246–248)



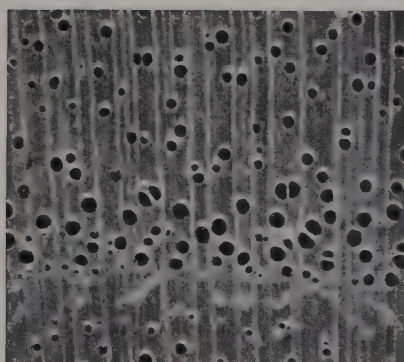
243. *Magnolia acuminata*
Magnolia



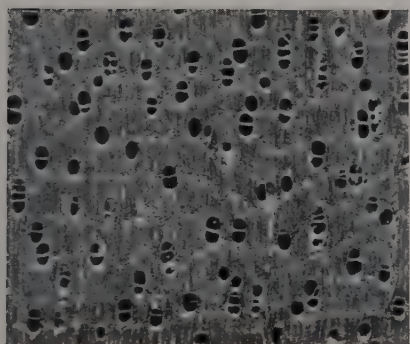
244. *Hibiscus tiliaceus*
Mahoe



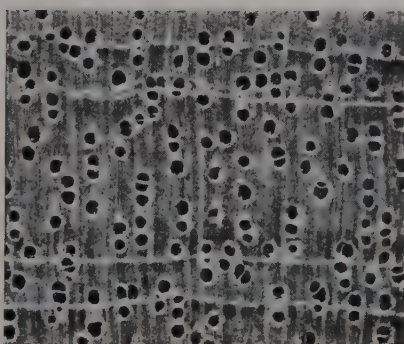
245. *Tetramerista glabra*
Punah



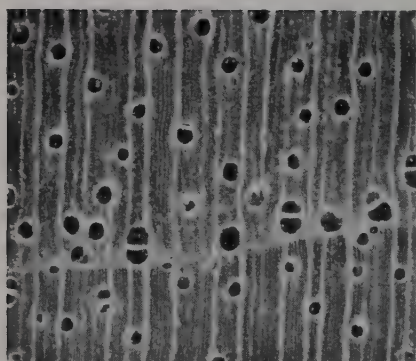
246. *Azadirachta indica*
Neem



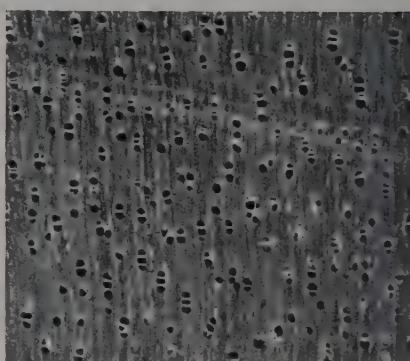
247. *Cabralea cangerana*
Cangerana



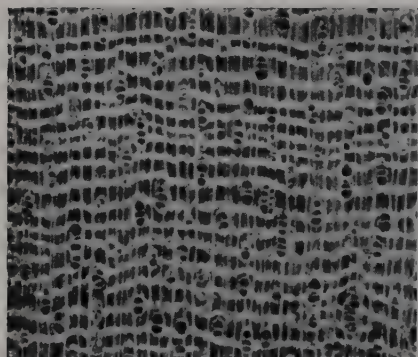
248. *Carapa guianensis*
Crabwood



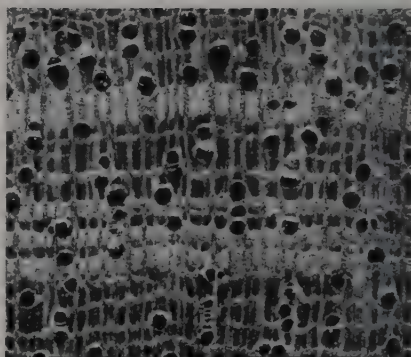
249. *Cedrela* sp.
South American cedar



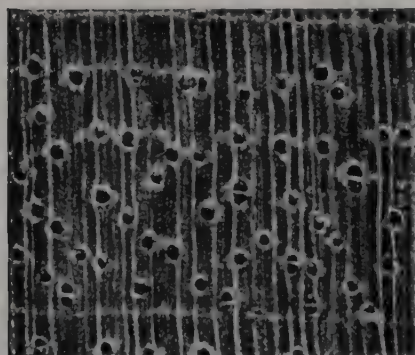
250. *Chukrasia tabularis*
Chickrassy



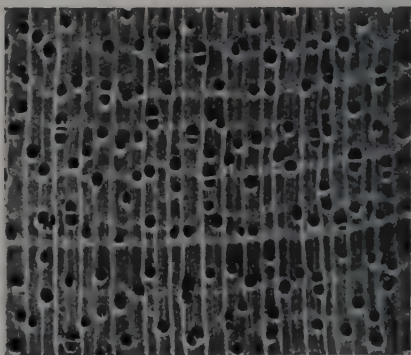
251. *Dysoxylum fraserianum*
Australian mahogany



252. *Entandrophragma candollei*
Heavy sapele, Omu

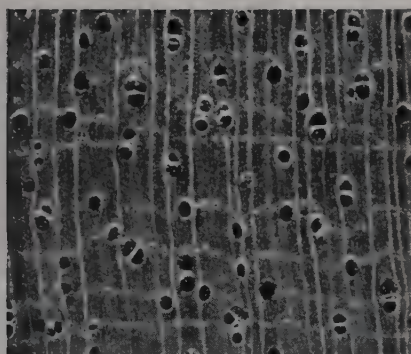


253. *Entandrophragma angolense*
Gedu nohor

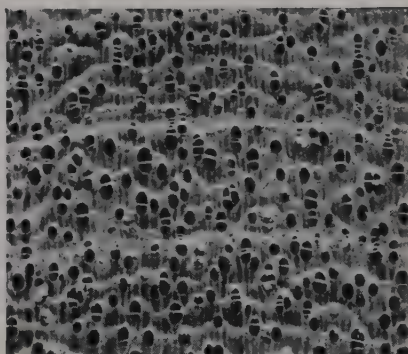


254. *Entandrophragma cylindricum*
Sapele

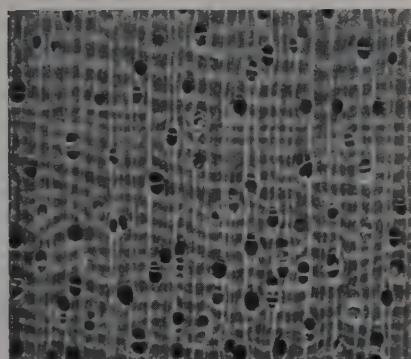
MELIACEAE (255-260)



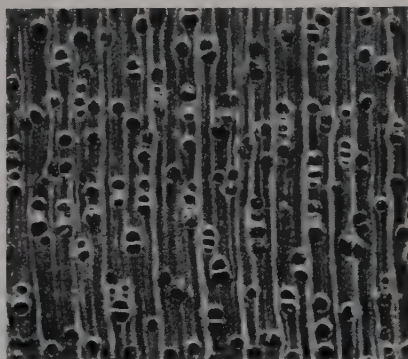
255. *Entandrophragma utile*
Utile



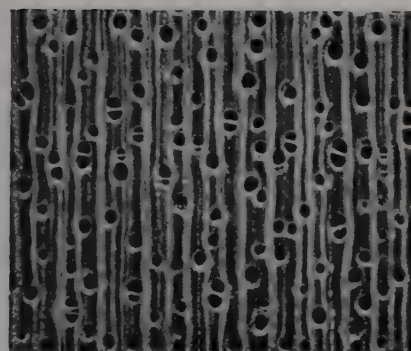
256. *Guarea cedrata*
Guarea



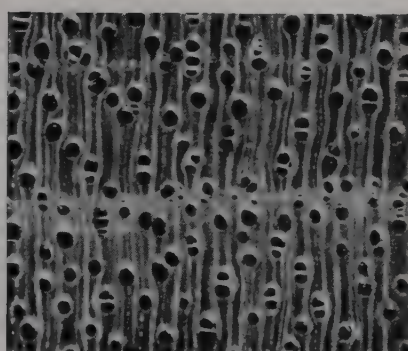
257. *Guarea thompsonii*
Guarea



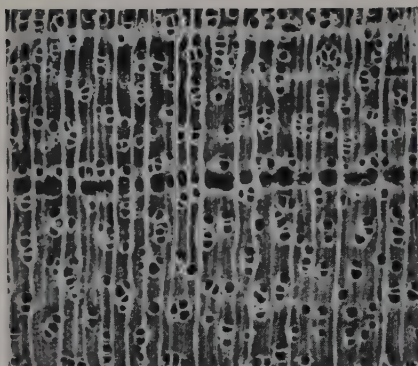
258. *Khaya ivorensis*
African mahogany



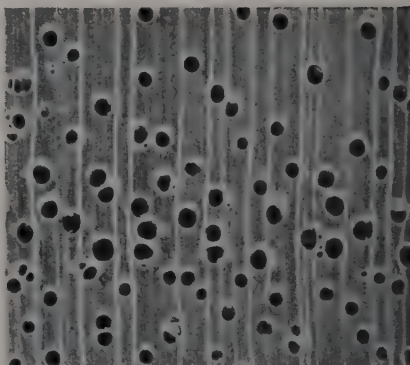
259. *Khaya nyasica*
African mahogany



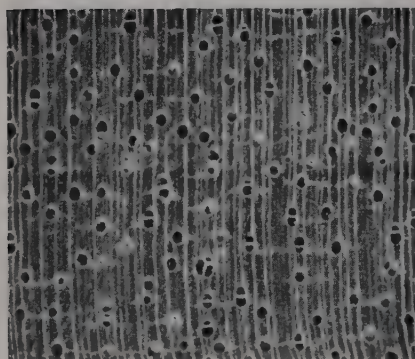
260. *Khaya senegalensis*
African mahogany



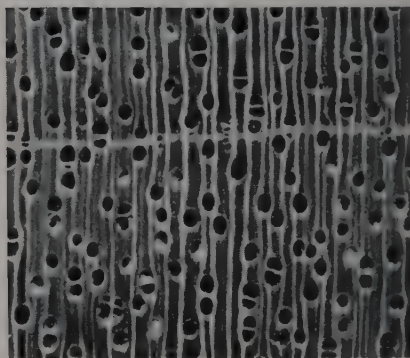
261. *Lovoa klaineana*
African walnut



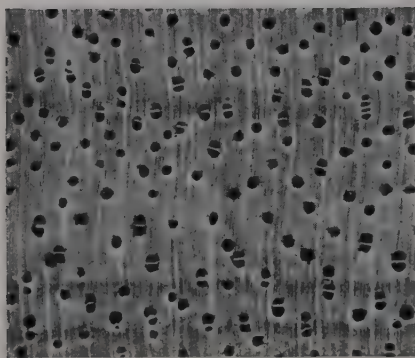
262. *Melia composita*
Lunumidella



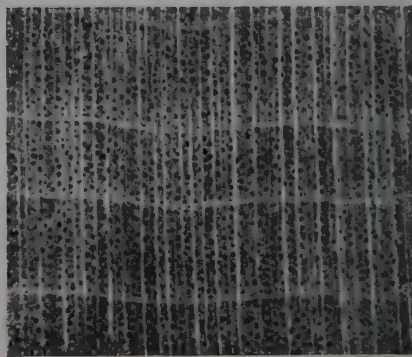
263. *Sandoricum indicum*
Katon



264. *Swietenia macrophylla*
Central American mahogany

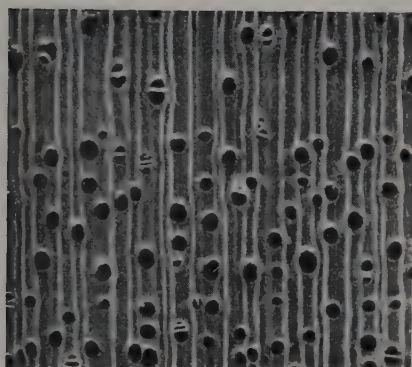


265. *Turraeanthus africanus*
Avodire

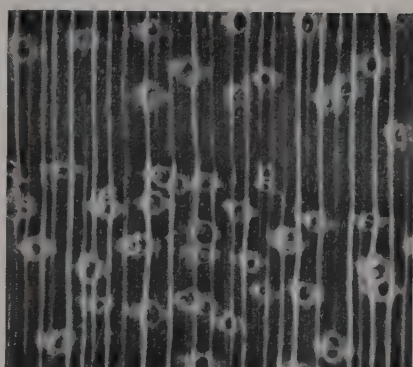


266. *Laurelia aromatica*
Chilean laurel

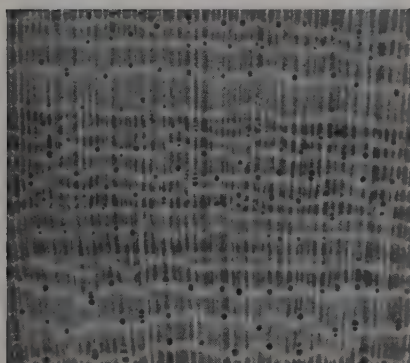
MORACEAE (267-272)



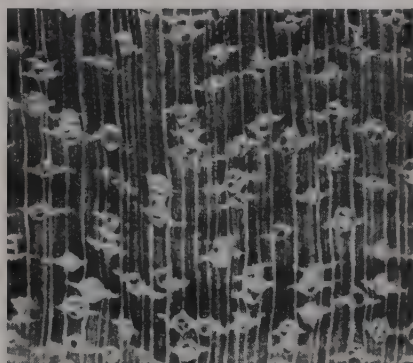
267. *Antiaris africana*
Antiaris



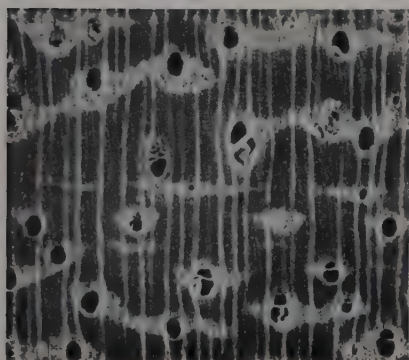
268. *Artocarpus chaplasha*
Chaplash



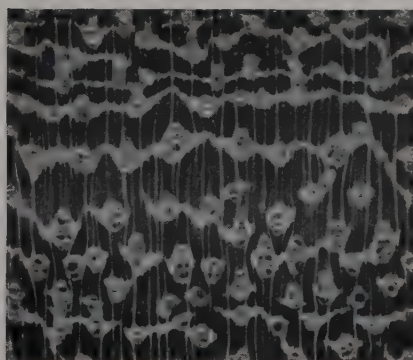
269. *Bosquiea phoberos*
Mballakaya



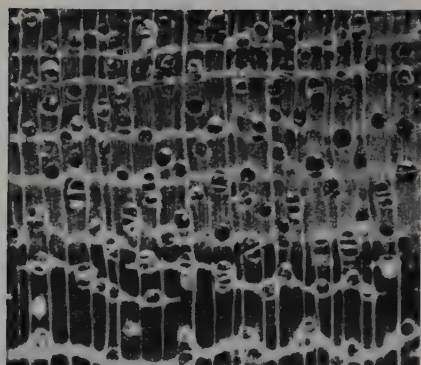
270. *Brosimum paraense*
Satiné



271. *Chlorophora excelsa*
Iroko



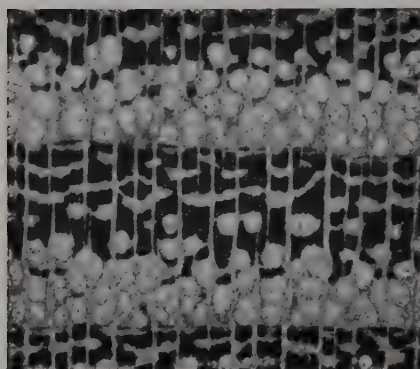
272. *Chlorophora tinctoria*
Fustic



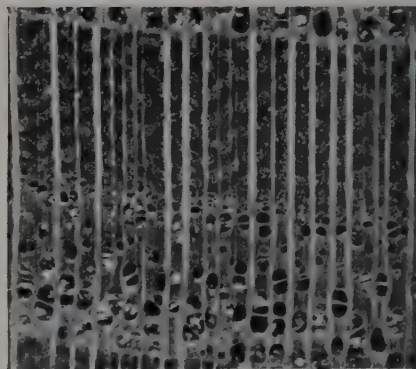
273. *Clarisia racemosa*
Moral



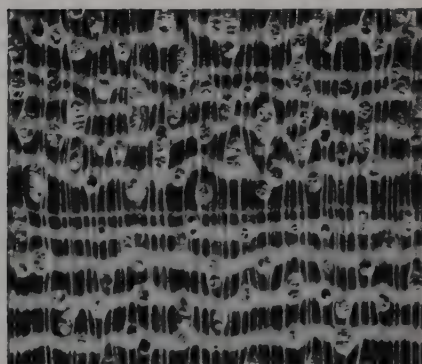
274. *Ficus sycomorus*
Fig



275. *Maclura pomifera*
Osage-orange



276. *Morus alba*
Mulberry



277. *Morus lactea*
Mecodze



278. *Musanga smithii*
Umbrella tree

MORACEAE (279)—MYRISTICACEAE (280–283)

MYRSINACEAE (284)



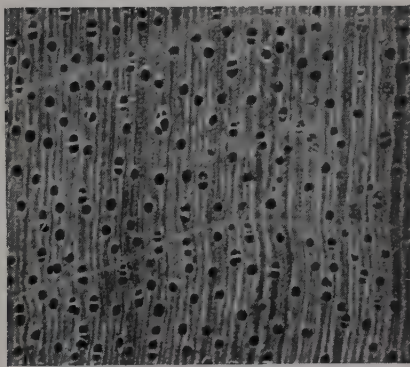
279. *Piratinera guianensis*
Snakewood



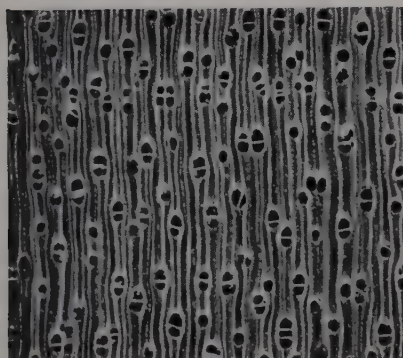
280. *Myristica maingayi*
Penarahan



281. *Pycnanthus kombo*
Pycnanthus



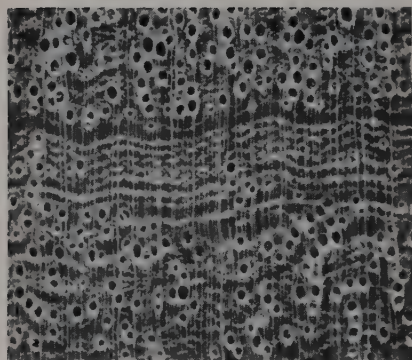
282. *Staudtia gabonensis*
Niové



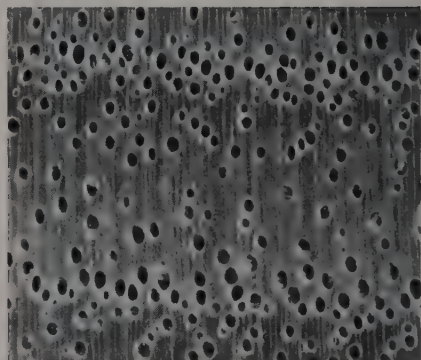
283. *Virola koschnyi*
Banak



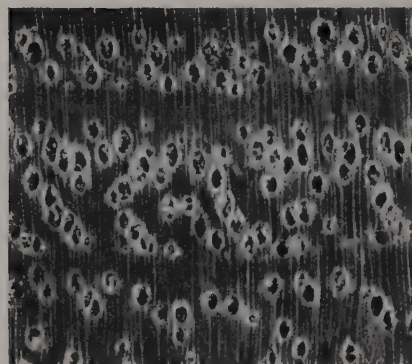
284. *Rapanea rhododendroides*
Rapanea



285. *Backhousia bancroftii*
Johnston River hardwood



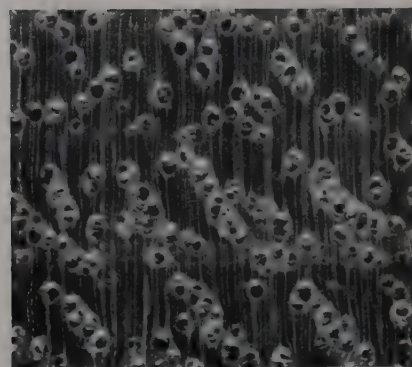
286. *Eucalyptus fraxinoides*
Australian white ash



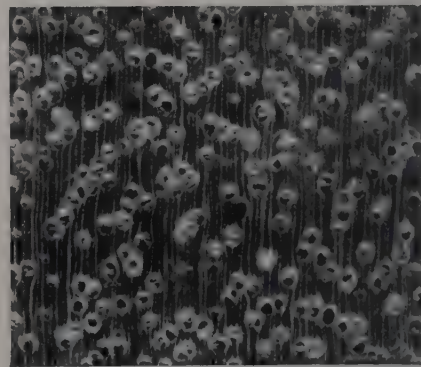
287. *Eucalyptus globulus*
Blue gum



288. *Eucalyptus maculata*
Spotted gum

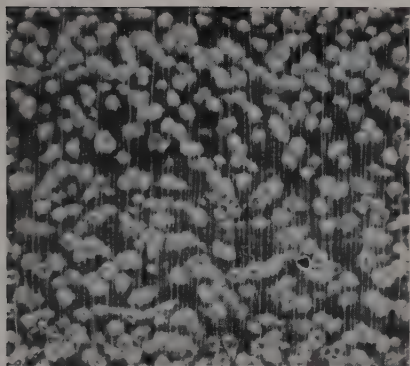


289. *Eucalyptus microcorys*
Tallowwood

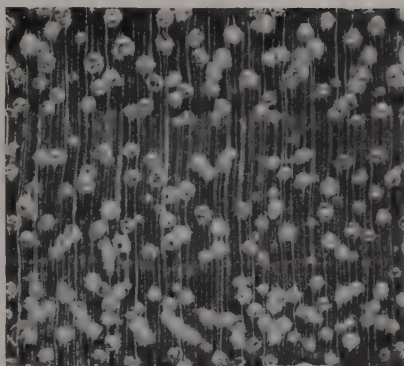


290. *Eucalyptus pilularis*
Blackbutt

MYRTACEAE (291-296)



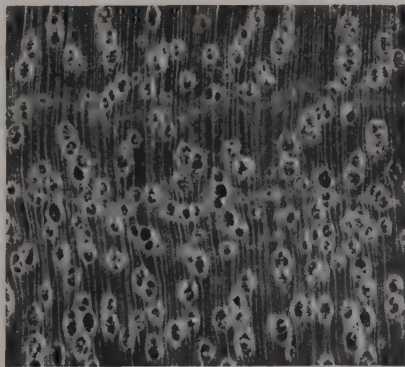
291. *Eucalyptus acmenioides*
Yellow stringybark



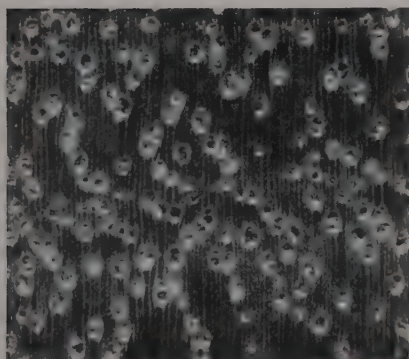
292. *Eucalyptus paniculata*
Ironbark



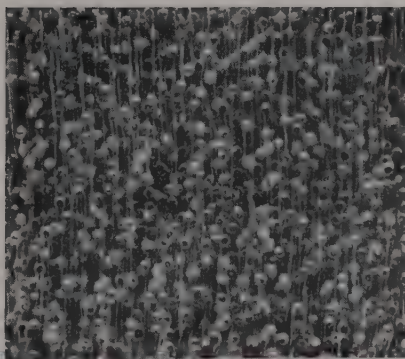
293. *Eucalyptus marginata*
Jarrah



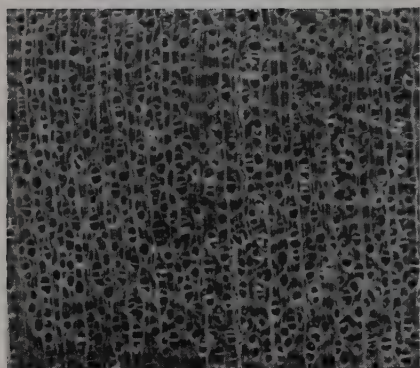
294. *Eucalyptus diversicolor*
Karri



295. *Eucalyptus saligna*
Saligna gum



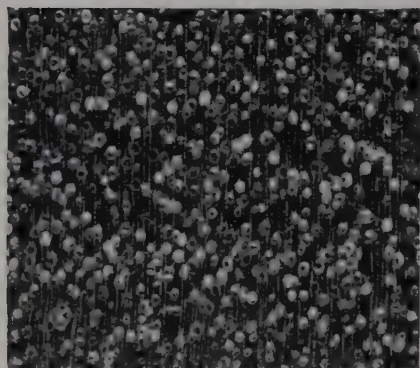
296. *Eucalyptus redunca* var. *elata*
Wandoo



297. *Eugenia gustavioides*
Grey satinash



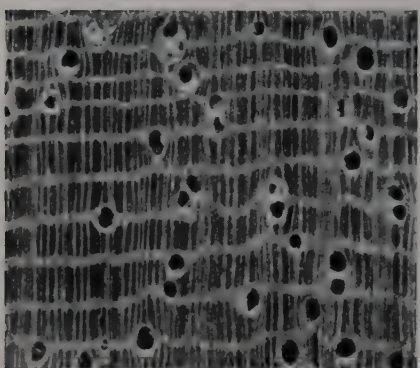
298. *Syncarpia hillii*
Red satinay



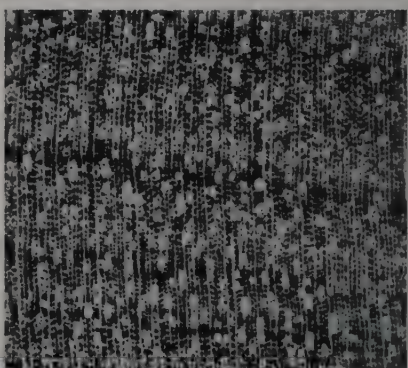
299. *Syncarpia laurifolia*
Turpentine



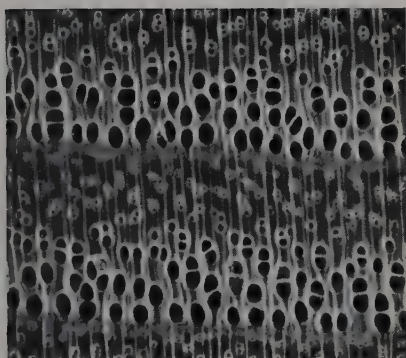
300. *Tristania conferta*
Brush box



301. *Lophira alata* var. *procera*
Ekki



302. *Strombosia pustulata*
Afina



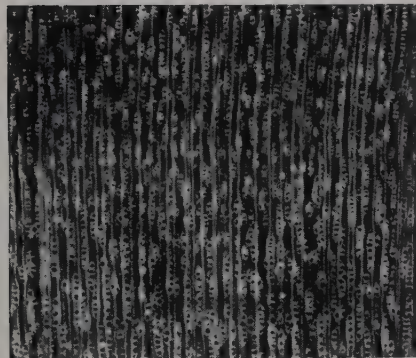
303. *Fraxinus excelsior*
European ash



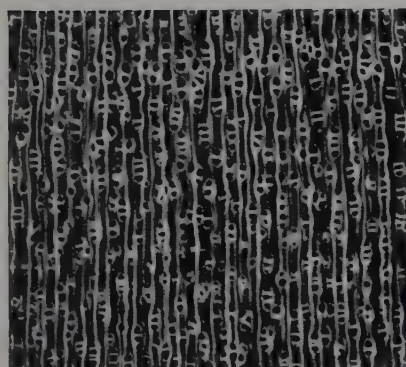
304. *Ligustrum vulgare*
Privet



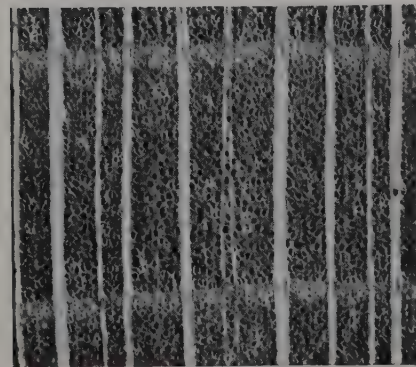
305. *Olea europea*
European olive



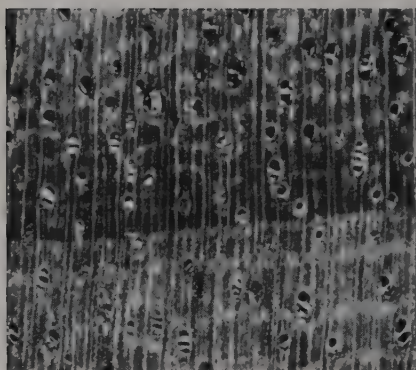
306. *Olea hochstetteri*
East African olive



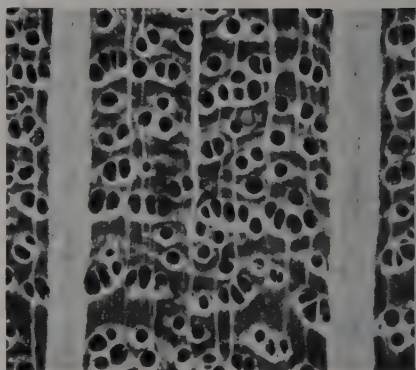
307. *Olea (Steganthus) welwitschii*
Elgon olive



308. *Platanus acerifolia*
London plane



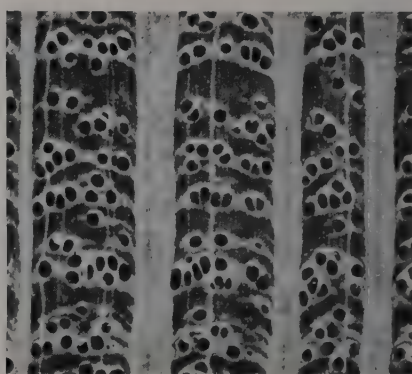
309. *Triplaris* sp.
Fernan-sanchez



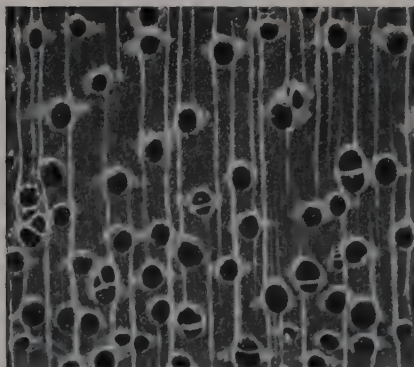
310. *Cardwellia sublimis*
Silky oak



311. *Embotrium coccineum*
Notro



312. *Grevillea robusta*
Southern silky oak



313. *Maesopsis eminii*
Musizi



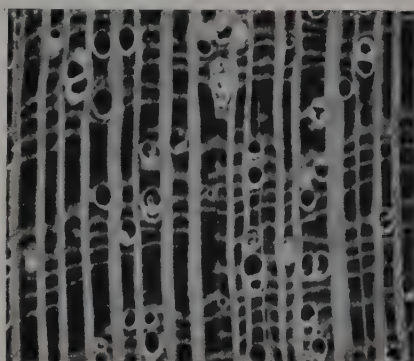
314. *Rhamnus catharticus*
Common buckthorn

RHAMNACEAE (315)—RHIZOPHORACEAE (316–319)

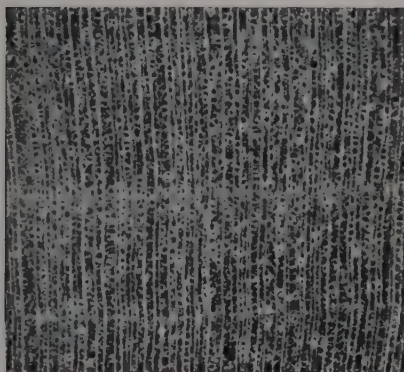
ROSACEAE (320)



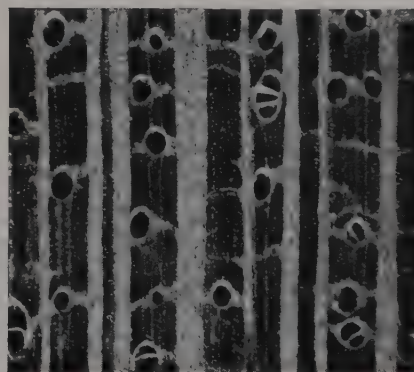
315. *Rhamnus frangula*
Alder buckthorn



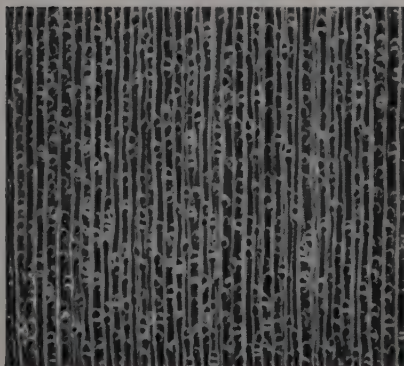
316. *Anisophyllea laurina*
Monkey apple



317. *Cassipourea elliotii*
Pillarwood



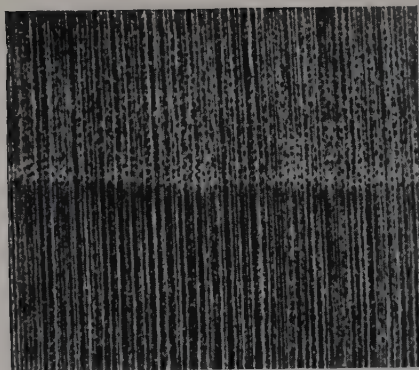
318. *Poga oleosa*
Poga



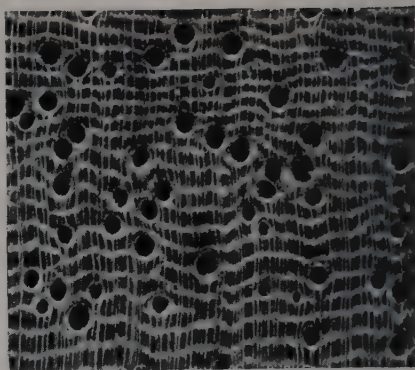
319. *Rhizophora mangle*
Mangle



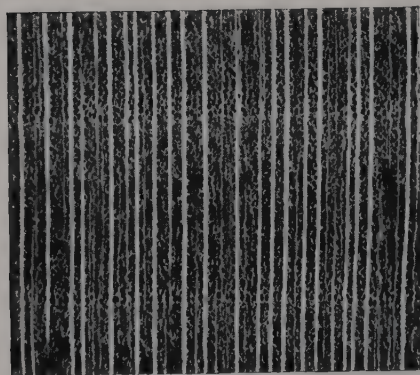
320. *Crataegus* sp.
Hawthorn



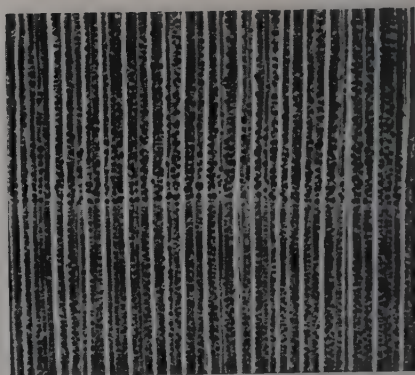
321. *Malus pumila*
Apple



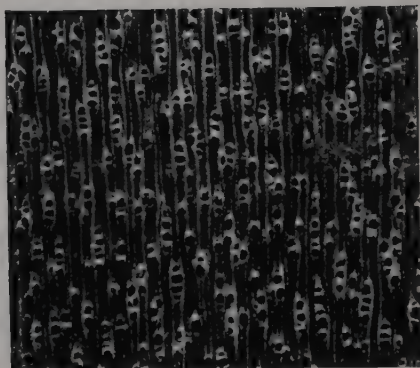
322. *Parinari excelsa*
Mubura



323. *Prunus avium*
European cherry



324. *Prunus serotina*
American black cherry



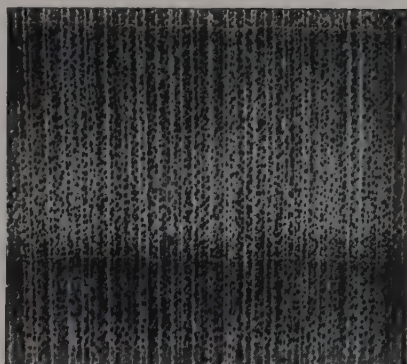
325. *Pygeum africanum*
Mueri



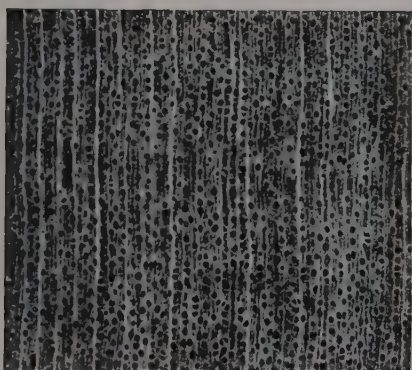
326. *Pyrus communis*
Pear



327. *Sorbus aria*
Whitebeam



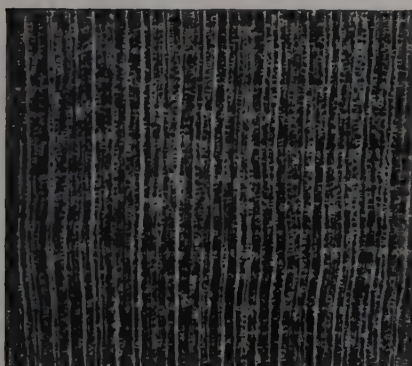
328. *Sorbus aucuparia*
Rowan



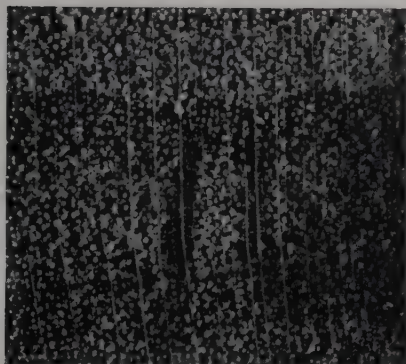
329. *Adina cordifolia*
Haldu



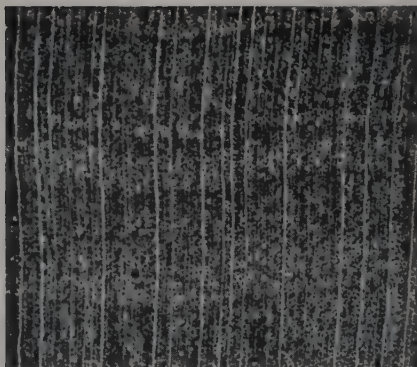
330. *Adina microcephala*
Mugonha



331. *Calycophyllum candidissimum*
Degame



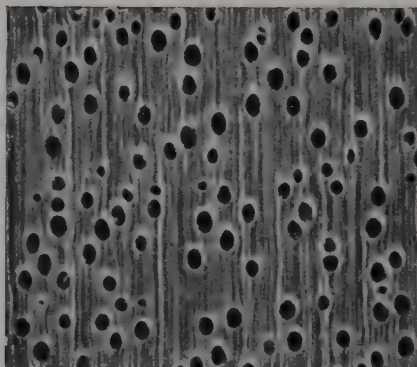
332. *Canthium dicoccum*
Ceylon boxwood



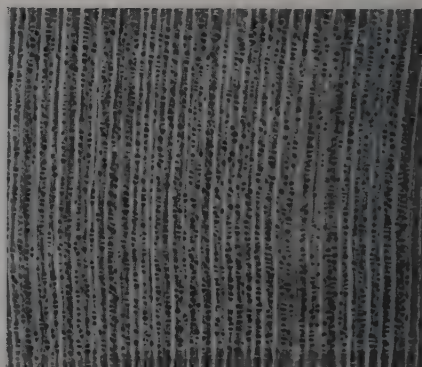
333. *Gardenia latifolia*
Gardenia



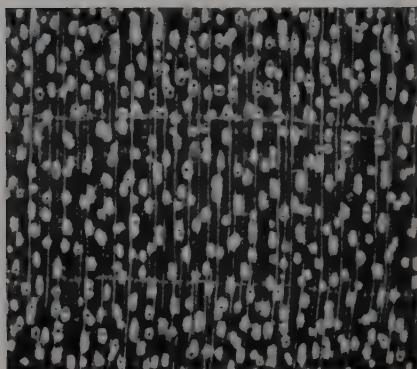
334. *Mitragnya ciliata*
Abura



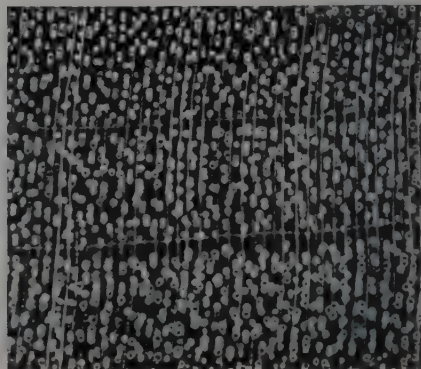
335. *Sarcocephalus diderrichii*
Opepe



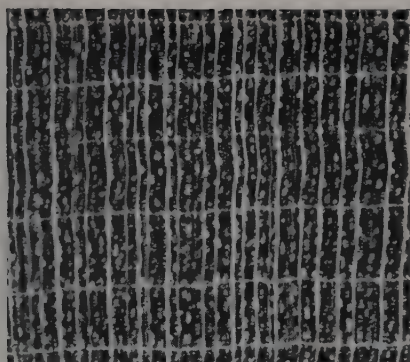
336. ? *Sickingia* sp.
Colorado



337. *Amyris balsamifera*
Amyris wood



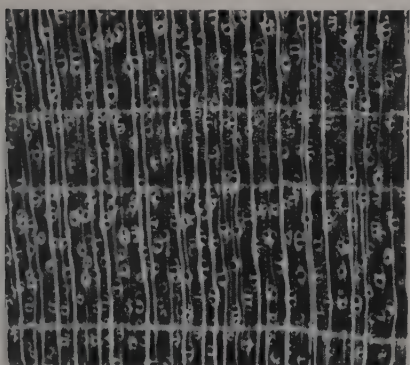
338. *Chloroxylon swietenia*
East Indian satinwood



339. *Fagara flava*
West Indian satinwood



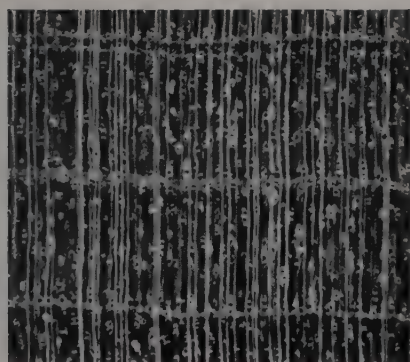
340. *Fagara macrophylla*
Olon



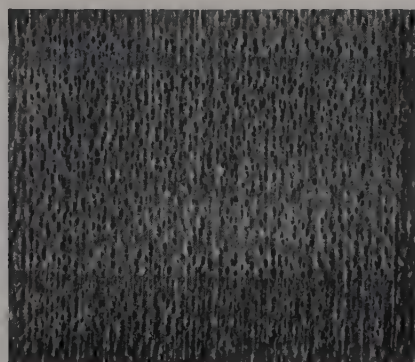
341. *Fagaropsis angolensis*
Mafu



342. *Flindersia brayleyana*
Queensland maple



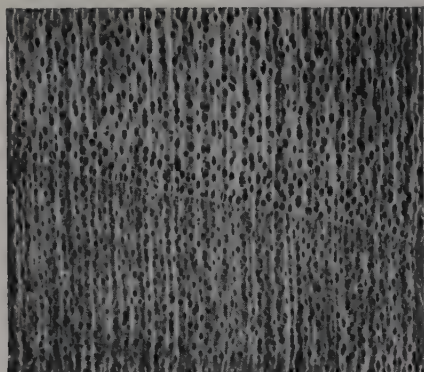
343. *Teclea viridis*
Munderendu



344. *Populus alba*
White poplar

SALICACEAE (345)—SANTALACEAE (346)

SAPINDACEAE (347)—SAPOTACEAE (348-350)



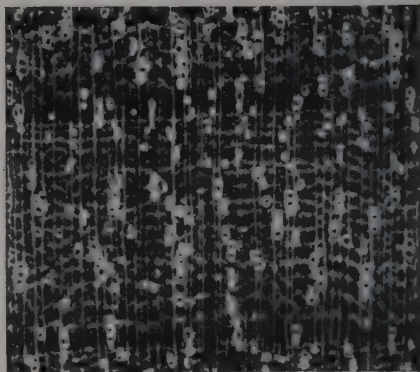
345. *Salix alba*
White willow



346. *Santalum album*
Sandalwood



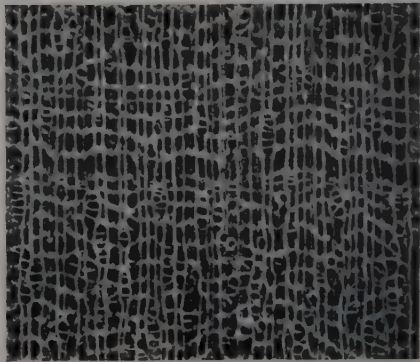
347. *Blighia sapida*
Akee apple



348. *Achras sapota*
Sapodilla



349. *Aningueria altissima*
Mukangu



350. *Autranella congolensis*
Mukulungu

SAPOTACEAE (351-356)



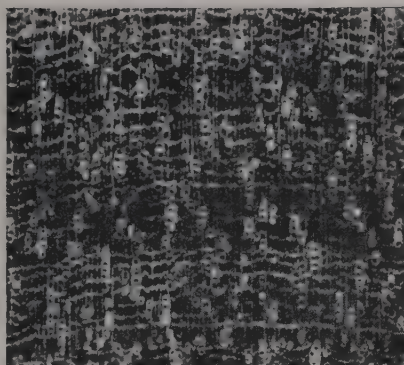
351. *Chrysophyllum* sp.
Longui rouge



352. *Minusops djave*
Moabi



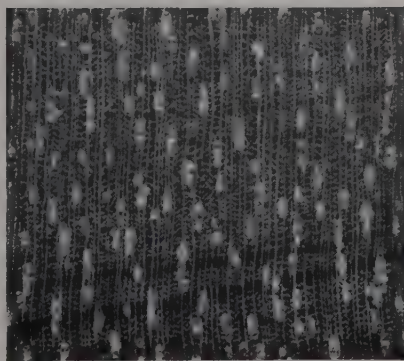
353. *Minusops heckelii*
Makoré



354. *Minusops hexandra*
Palu



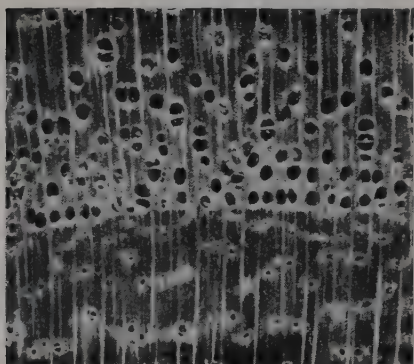
355. *Palaquium* sp.
Nyatoh



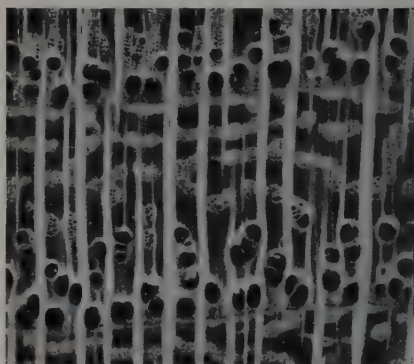
356. *Sideroxylon foetidissimum*
Mastic

SCROPHULARIACEAE (357)—SIMARUBACEAE (358–360)

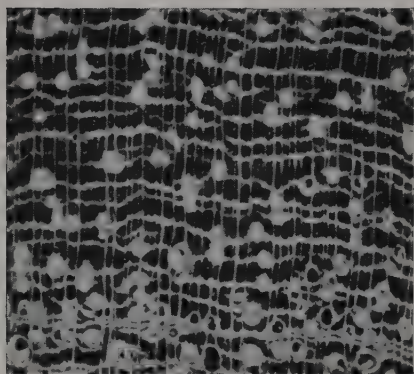
STERCULIACEAE (361, 362)



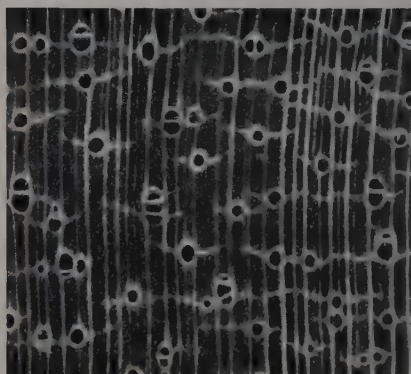
357. *Paulownia* sp.
Paulownia



358. *Ailanthus altissima*
Tree of Heaven



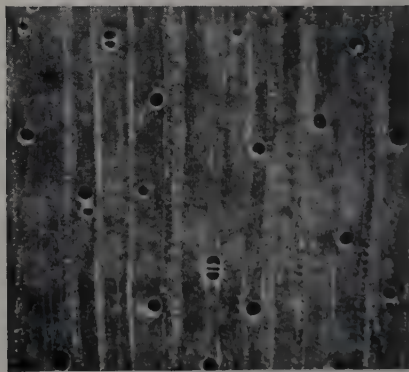
359. *Klainedoxa gabonensis*
Odudu



360. *Simaruba amara*
Simaruba

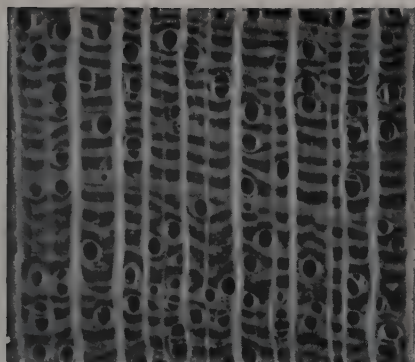


361. *Argyroderendron trifoliatum*
Brown tulip oak

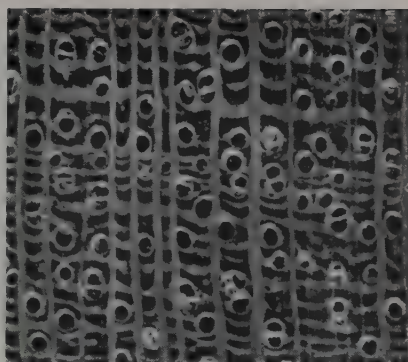


362. *Sterculia campanulata*
Papita

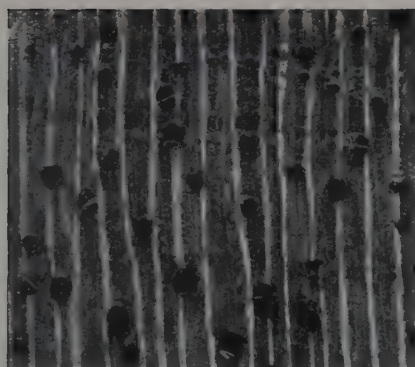
STERCULIACEAE (363-366)—TILIACEAE (367, 368)



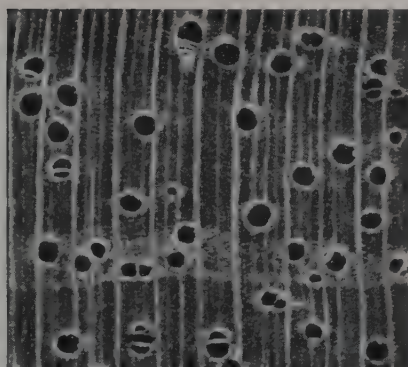
363. *Sterculia oblonga*
Yellow sterculia



364. *Sterculia rhinopetala*
Brown sterculia



365. *Tarrietia utilis*
Nyankom



366. *Tarrietia simplicifolia*
Mengkulang



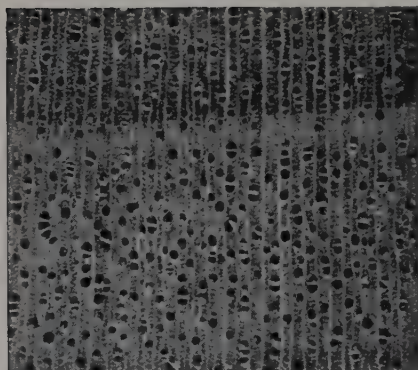
367. *Berrya ammonilla*
Trincomalee wood



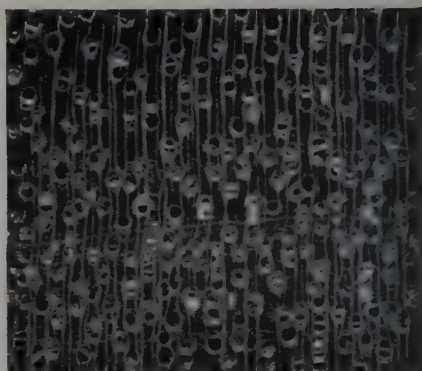
368. *Cistanthera papaverifera*
Danta

TILIACEAE (369-371)—TRIPLOCHITONACEAE (372, 373)

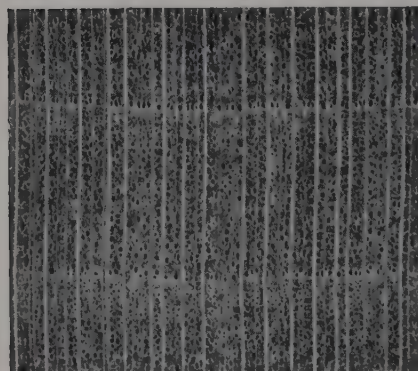
TROCHODENDRACEAE (374)



369. *Pentace burmanica*
Thitka



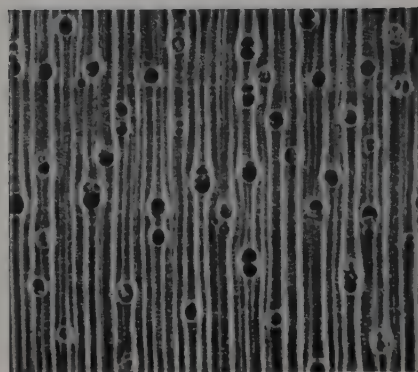
370. *Pentace triptera*
Melunak



371. *Tilia vulgaris*
Lime



372. *Mansonia altissima*
Mansonia

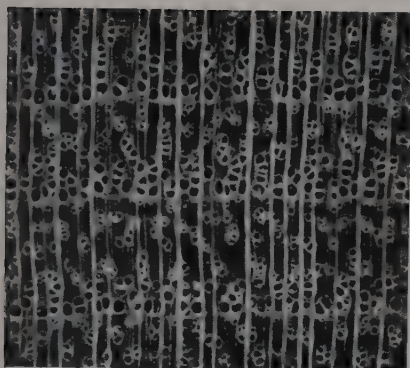


373. *Triplochiton scleroxylon*
Obeche

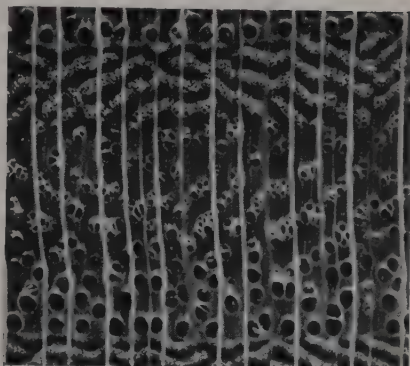


374. *Cercidiphyllum japonicum*
Katsura

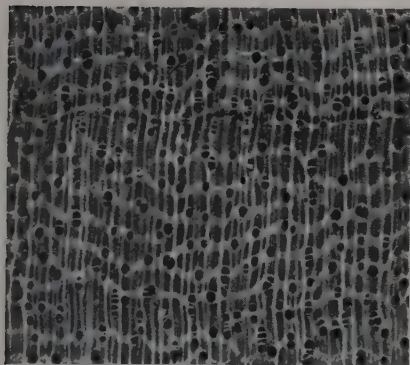
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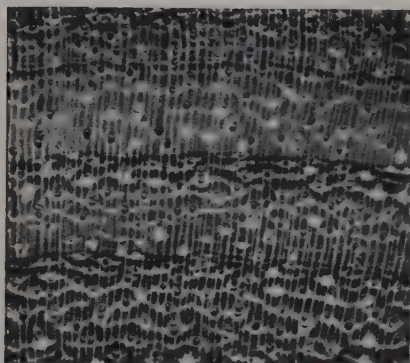
375. *Celtis kraussiana*
Mweye



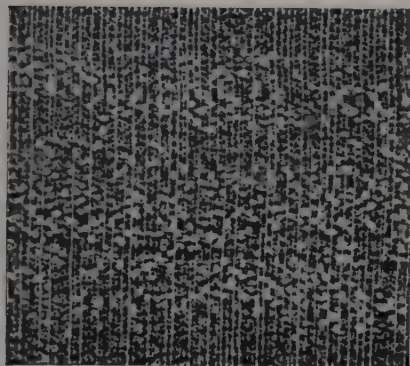
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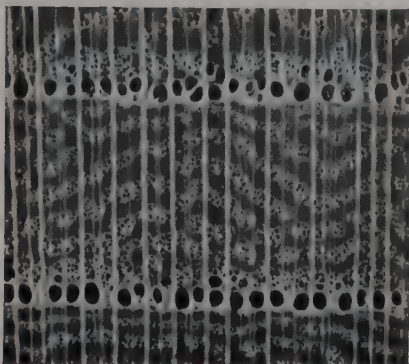
377. *Celtis soyauxii*
Celtis



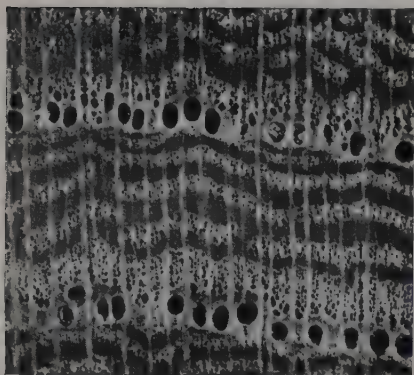
378. *Holoptelea integrifolia*
Indian elm



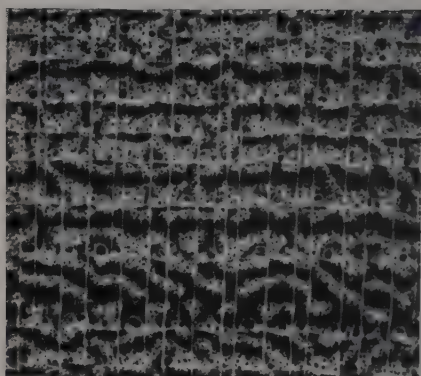
379. *Phyllostylon brasiliensis*
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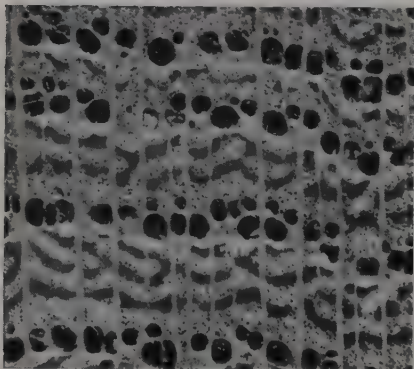
380a. *Ulmus glabra*
Wych elm



380b. *Ulmus procera*
European elm



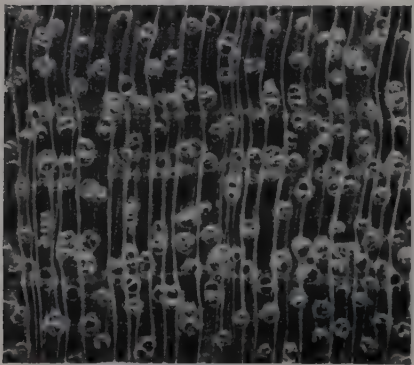
380c. *Ulmus thomasi*
Rock elm



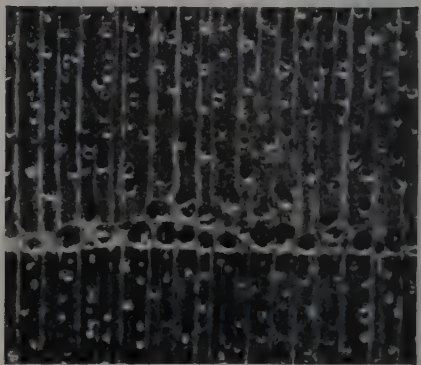
381. *Zelkova acuminata*
Keyaki



382. *Avicennia* sp.
Mangrove



383. *Gmelina arborea*
Gamari



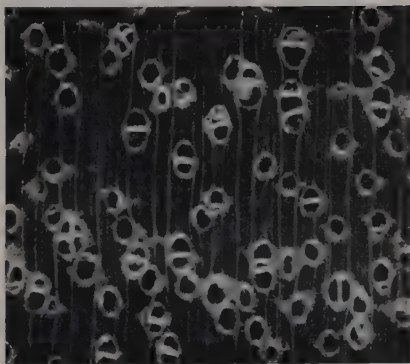
384. *Tectona grandis*
Teak

VERBENACEAE (385)—VOCHYSIACEAE (386–388)

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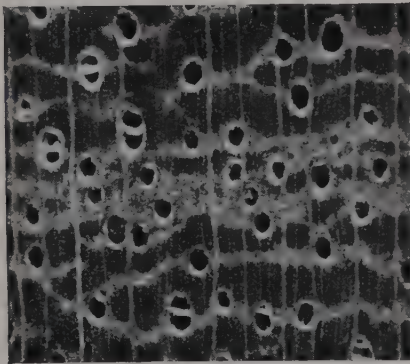
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Puriri



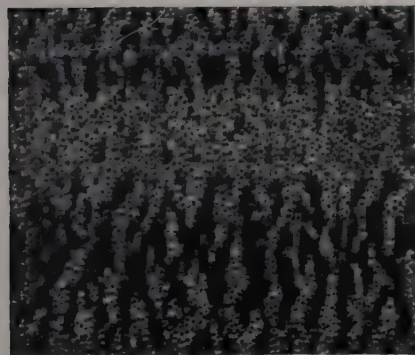
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Mandio



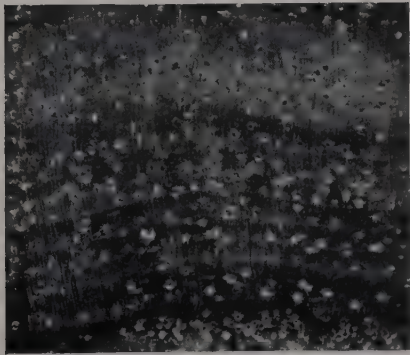
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